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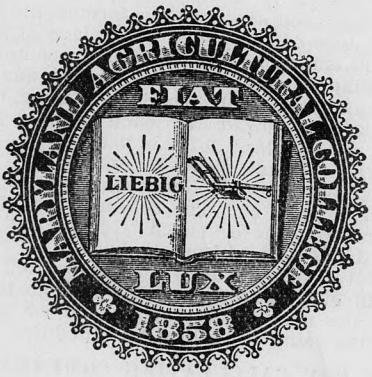
FERTILIZER ANALYSES

H. J. PATTERSON, President

H. B. McDONNELL, State Chemist



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ADDRESS

Chemical Department, Maryland Agricultural College

COLLEGE PARK, MD.

ANALYSES OF

Fertilizers Sold in Maryland

BY THE CHEMICAL DEPARTMENT OF

The Maryland Agricultural College

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The tables on the following pages are made up of the results of the Analysis of fertilizers made at the College from August, 1915, to January, 1916, inclusive.

The majoriity of the samples analyzed are obtained by our sampling agents, the samples being taken while the goods are in transit, on vessels, wharves, cars or stations, from farmers' wagons, barns, etc. It is impossible for us to analyze all samples we collect; duplicates are generally omitted.

When a sample has been sent in by a farmer, his name, or initials, will be found after the "place of sampling." If "place of sampling is not given, the sample has been made up of two or more samples taken at different places. Before sending samples of fertilizer for analysis, farmers should always send for blank forms and directions, stating the number of blanks wanted. One blank is required for each sample. No sample will be analyzed unless the proper blank form is used.

The figures in the columns headed "Ammonia," "Potash" and "Phosphoric Acid," are percentages, or pounds per hundred. To get pounds per ton multiply the per cent by 20. The columns headed "Found" contain the results found by analysis; those headed "Guaranteed" contain the essential parts of the guarantee as stamped on the bags.

The "Comparative Value Found" is calculated from the results of analysis as found in our laboratory: the "Comparative Value Guaranteed" is calculated from the manufacturers' guaranteed analysis as printed on the bags; in each case using the following schedule:

SCHEDULES FOR CALCULATING COMPARATIVE VALUES.

In Mixed Fertilizers:

For Nitrogen, calculated as Ammonia	20 cts. per pound
†For potash (K_2O)	20 cts. per pound
For Available Phosphoric Acid	30 cts. per pound
For Insoluble Phosphoric Acid	5 cts. per pound
For Insoluble Phosphoric Acid when from rock	2 cts. per pound
	1 ct. per pound

In Dissolved Rock:

Available Phosphoric Acid	3½ cts. per pound
Insoluble Phosphoric Acid	1 ct. per pound

In Tankage:

For Nitrogen, calculated as Ammonia	20 cts. per pound
For Phosphoric Acid	2½ cts. per pound

In Ground Bone:

For Nitrogen, calculated as Ammonia	20 cts. per pound
For Phosphoric Acid	3 cts. per pound

*Resigned December 15.
†See note on next page.

Since the adoption of the above schedule there has been a decided advance in the price of practically all fertilizing materials and it will be necessary to increase the schedule for the spring trade, especially for potash and available phosphoric acid. Small lots of muriate of potash have recently sold for $500.00 to $600.00 per ton. At the former price potash should be valued at $10.00 per unit, which is 50 cents per pound. The wholesale price of acid phosphate has about doubled in a few months, due partly to higher freight rates on raw rock, to much higher freight rates on sulphur ore from Spain and to the high price for sulphuric acid used in the process of making the phosphoric acid soluble.

POTASH TOO EXPENSIVE FOR AGRICULTURE.

FARMERS SHOULD NOT USE IT AT PRESENT PRICES.

It is evident that potash at the present prices is entirely too expensive to be used in fertilizers, and the price is rapidly advancing, due to the exhaustion of potash supplies in the country, which are now very low indeed. Fertilizers containing potash for the spring trade will contain but very small amounts and in many cases only a fraction of a per cent. In other words, the potash content will be reduced to a point where the potash, so far as the half per cent of potash when fertilizer is applied at 200 or 300 pounds per acre will make less than a pound of actual potash to the acre. This is too small an amount to have any practical benefit. It should be remembered that most soils contain an abundance of potash provided it can be made available. In nature, fortunately, potash like other plant foods is liberated but slowly from the soil, hence, it is impossible to remove the entire amount of potential plant food. In Bulletin No. 70 of the Maryland Experiment Station we find that potash in Maryland soils is rarely less than 1% and in some cases will be found to be as high as 4%, the average being in the neighborhood of 2%. The problem for the Maryland farmer is by making proper use of the agencies within his control, by the use of fertilizers other than potash, by the use of lime when required, rotation of crops, growing of legumes and thorough cultivation, to make available so far as possible the potash already in the soil.

In the following table we give the percent of total potash in Maryland soils, as given in the bulletin above mentioned, the samples being taken in the vicinity of the places mentioned.

POTASH CONTENT OF MARYLAND SOILS.

Salisbury	1.17
Concord	.94
Marley	.37
Magothy Neck	.46
Waterbury	.58
Shipley	.39
North Keys	1.22
Chaneyville	.86
Chaneyville	.65
Upper Marlboro	.94
St. Mary	1.09
Op. St. Mary	1.25
Op. Benedict	1.32
Herring Bay	1.20
Popes Creek	1.09
Davidsonville	1.52
Davidsonville	.76
Chestertown	1.58
Cambridge	1.38
Linkwood	.92
Havre de Grace	1.06
Havre de Grace	.86
Gibson	1.24
Hancock	3.04
Hancock	1.52
Twiggtown	1.56
Type Sample, Washington Co.	1.06
Comp. Sample, Allegany Co.	2.36
Comp. Sample, Allegany Co.	3.10
Accident	3.94
Brookside	2.76
Type Sample, Triassic	2.70
Thurmont	3.52
Uniontown	2.82
Hagerstown, 4 miles South	1.91
Hagerstown, 5 miles East	4.32
Leitersburg, 3 miles South	3.68
Cavetown, 1½ miles West	3.08
Hagerstown, 2½ miles West	2.64
Smithsburg	2.72

Centerville	1.70	Cavetown, 1 miles northeast	2.89
Wye Mills	2.05	Crampton's Gap	3.92
Williamsport	1.52	Harpers Ferry, 2 miles North	4.08
Rocky Run Church	1.68	Cove Point	.12
Churchill	1.42	Bare Hills	1.84
Emmerton	.84	Baltimore	1.96
Glenville	1.51	Takoma Park	1.12
Mt. Hope	.41	Chrome Hills	1.44

AVERAGE POTASH CONTENT OF DIFFERENT FORMATIONS.

Columbia Truck	.47	Chesapeake and Columbia Truck	1.06
Chesapeake Tobacco	.91	Columbia Corn and Wheat	1.29
Chesapeake Corn and Wheat	1.27	Hudson River Shale	2.40
Chesapeake and Columbia Corn and Wheat	1.57	Gabbro	.90
Catskill Sandstone	3.02	Gneiss	1.31
Trenton Limestone	3.05	Helderberg Limestone	2.37
Lafayette Sands	.12	Triassic Sandstone	3.10
Potomac Clay	1.54	Cambrian Sandstone	3.40
		Serpentine	1.64

The Secretary of Agriculture recently made the following statement regarding the fertilizer situation:

American farmers are confronted by a serious situation in reference to fertilizer materials. As a result of the embargo placed by the German Government on the exportation of potash, the supply of this substance has been entirely cut off. Under normal conditions sulphuric acid, which is required for making superphosphates, is sold for $5 or $6 a ton. The increased demand for it since the breaking out of the European war has caused the price to rise about $25 a ton. It is impossible, therefore, for farmers to secure superphosphates at prices which they have been accustomed to pay. The nitrogen supply is not materially less than usual.

In 1913, when conditions were normal, about $125,280,000 worth of commercial fertilizers was used in the United States. Of this amount, the farmers paid $48,830,000 for nitrogenous substances, $56,000,000 for phosphates, and $20,450,000 for potash salts. Practically all the potash salts were imported from Germany, and the entire quantity of nitrate of soda came from Chile. Ammonium sulphate to the value of $3,720,000 was received from abroad, mainly from England. The remainder of the fertilizer materials was derived from domestic sources.

The quantities of the various substances entering into the fertilizer trade and the prices paid by the farmers were approximately as follows:

Material.	Tons	Total retail value.
Nitrogenous materials:		
Nitrate of soda	70,000	$3,500,000
Ammonium sulphate	215,000	13,330,000
Cottonseed Meal	1,000,000	25,000,000
Dried blood	40,000	1,600,000
Tankage	100,000	2,600,000
Fish scrap	70,000	2,800,000
Total		48,830,000
Phosphatic material:		
Acid phosphate	4,000,000	56,000,000
Potash salts:		
Muriate of potash	225,366	9,916,000
Sulphate of potash	47,874	2,872,000
Kainit	466,795	5,601,000
Manure salts	171,802	2,061,090
Total		20,450,000
Total, all materials		125,280,000

THE POTASH SITUATION.

There is practically no potash in this country at the present time for fertilizer use. The small quantities which were held over from former years are now priced at from eight to twelve times their normal value. The investigations of the department and the Geological Survey have shown the possibility of producing from American sources an ample supply of potash salts for domestic consumption. These sources are: The giant kelp of the Pacific coast from Lower California to Alaska, the alunite deposits, mainly in the mountains of Utah; the feldspathic rocks of the eastern part of the United States; and the mud of Searles Lake, in California.

Feldspar and Searles Lake.—The production of potash from feldspar is commercially feasible if a salable by-product can be secured at the same time. The suggestion has been made by the Bureau of Soils that cement is a possible product from the feldspar treated to render the potash soluble. But the difficulty of marketing this cement in competition with thoroughly standardized products would be a great deterring factor.

The development of Searles Lake as a source of potash presents a number of unsolved technical problems. In addition, the question of title to the property is so involved that considerable time will elapse before it can be settled. In the meantime nothing can be done.

Alunite.—Alunite, a mineral which exists in considerable quantities in Utah and neighboring States, contains about 11 per cent of potash. It is decomposed by roasting at a temperature of about 700 degrees, with the evolution of oxids of sulphur, and a residue consisting of alumina and potassium sulphate remains. From this residue the potash salt can be obtained readily by leaching and evaporation. The process is simple. The fumes liberated can be used to manufacture sulphuric acid. Alumina resulting as a by-product will be suitable for the manufacture of metallic aluminum. One large company has begun the manufacture of potash from

alunite and is reported to have made some preliminary shipments. It is understood that another large concern is about to begin the erection of the necessary plant for the production of potash from this mineral.

Giant kelp beds.—An ample supply of potash for the needs of farmers can be obtained from the giant kelp beds. These beds have been surveyed by the Bureau of Soils, and a report, accompanied by maps showing in detail their extent and location, recently has been issued. Harvesting is accomplished easily, as the kelp grows in open water, and barges fitted with mowing attachments can be used.

For utilizing the kelp several methods are feasible. It may be dried and ground. In this condition it contains all the salts originally present, which are mainly potassium chlorid and sodium chlorid. This material has ideal mechanical properties for use in mixed fertilizers. When the pure potassium chlorid is desired, it is necessary to separate the juice from the organic material and then to remove the sodium chlorid. The latter can be done readily by recrystallization; but the separation of the juice from the organic material is more difficult, for the reason that the kelp is nonfibrous and in attempts to effect separation by filtration the filters become clogged and unworkable. The problems yet to be worked out commercially are the best methods of drying the wet kelp and of effecting the ready and efficient separation of the plant juices from the organic material. Investigation of these questions has proceeded far enough to indicate that their solution should not be very difficult.

Three large concerns have begun operations for the manufacture of potash from kelp. While potash is indispensable in the preparation of fertilizers, it is also used for many other purposes, including the manufacture of matches, glass, liquid soap, and munitions. The prices offered under existing conditions by the manufacturers of such articles undoubtedly will cause practically the entire output of these concerns to be diverted from the fertilizer industry. It seems unlikely that normal conditions will be restored in the immediate future and that potash can be secured from foreign sources as heretofore in time for the next crop-planting season. It also seems improbable that private enterprise will provide potash from domestic sources for agricultural purposes in time. It would require 90 or more plants, costing approximately $50,000 and having an operating capital of about $25,000 each, to produce the quantity needed for agriculture. This would involve the assumption that the commercial phases of the problem were satisfactorily solved. Even if the requisite funds were available, it is a question whether operations could begin in time to provide an adequate supply for the coming year. The department is investigating all aspects of the question and is planning to send experts to California to study the situation and especially to consider possibilities of production on a commercial scale.

One fact has operated in a measure to embarrass private enterprise in this field. There is no legislation in any of the Pacific Coast States, along whose shores the kelp lies, providing for the leasing of the kelp beds. Without leases private investors would have no assurance that plants erected by them would have the necessary control over the kelp within their vicinity. The department's officers will discuss this matter with the proper authorities in the Pacific Coast States and will urge the necessity of legislation regulating the use of the beds.

THE PHOSPHATE SITUATION.

Acid phosphate is the basis of nearly all commercial mixed fertilizers. It is made by the action of sulphuric acid upon phosphate rock. Our available sources of phosphate rock are greater than those of any other nation. The main supply for domestic consumption and for exportation comes from Tennessee, South Carolina, and Florida. The United States Government, however, owns vast deposits of phosphate rock in Utah,

Wyoming, Montana, and neighboring States. These deposits have been withdrawn from private use pending legislation for their utilization, and no supply has yet been developed from this source.

In 1914, 2,734,000 tons of phosphate rock were produced in this country. Up to that year about one-half the quantity mined was exported to Europe. The rock in its natural state is not readily absorbed as a plant food. It is made available for this purpose by treatment with sulphuric acid, about 1 ton of the acid being used to a ton of phosphate rock. When thus treated, a superphosphate containing 14 to 18 per cent of water-soluble phosphoric acid is made. The bulk of the sulphuric acid which enters in the manufacture of acid phosphate is made by fertilizer companies. Practically every fertilizer establishment (excepting the cottonseed meal factories) having an annual capacity of 15,000 tons or more operates also a sulphuric acid plant. The demand for the acid is so strong at present that every effort is being made to utilize old and abandoned establishments and to erect new plants. The latter operation is slow and costly on account of the large amount of lead necessary for the construction of acid chambers. Difficulty also is being experienced in securing an adequate supply of pyrites, which is the principal source of sulphur.

The potential sources of sulphuric acid in the United States are ample to produce more than double the present annual output. Few of the lead, zinc, or copper smelting companies using sulphid ores have sulphuric acid plants in connection with their smelters. The fumes discharged into the atmosphere by these smelters are sufficient to produce many thousands of tons of sulphuric acid daily. Under normal conditions, the limited market for the acid and the long haul necessary to reach the market have made it commercially impracticable to convert the fumes into sulphuric acid. It is entirely feasible to erect sulphuric acid plants in connection with the copper, zinc, and lead smelters using sulphid ores. The concentrates of the ores may be roasted in furnaces independent of the smelting plants or the fumes may be delivered direct to the acid chambers.

The erection of acid plants of sufficient capacity to convert the smelter gases would involve an outlay of at least several million dollars. Under normal conditions it would take four months to complete the plants. In the present situation at least six months would be required. The Bureau of Soils estimates that sulphuric acid could be made by some of the western smelting plants at approximately one-half the normal cost of producing the acid in the East where pyrites is used. The saving in cost of manufacture in the West, however, would be partly offset by the long haul necessary to bring the acid to the eastern market.

In view of the difficulties in the way of the production and utilization of sulphuric acid for fertilizer purposes the Bureau of Soils has endeavored to develop a commercial method involving the use of the electric furnace for manufacturing phosphoric acid, which can be used as a substitute. Through this method double superphosphate, which will contain 40 to 50 per cent of water-soluble phosphoric acid, or the still more concentrated form of ammonium phosphate, could be secured; but the use of the electric furnace for the purpose is commercially feasible only where phosphate rock, coal, and cheap water power are readily available. The department is investigating this matter to ascertain whether there are localities where these conditions exist and where, therefore, double superphosphate may be made.

THE NITROGEN SITUATION.

The nirogen situation is of less pressing concern. Cottonseed meal forms the bulk of the nitrogenous substances entering commercial fertilizers. The amount available for ferilizer use is dependent upon the annual production of cotton and the demand for the meal for feeding stuffs. The supply of dried blood and tankage, also sources of nitrogenous ma-

(Continued on Page 31.)

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Alexandria Fertz. & Chemical Co.,	**Alexandria, Va.**										
32151	High Grade Acid Phos. 16%	Potomac	.....	.....	.....	.....	.63	.....	16.02	16.00	$11.34	$11.20
	American Agricultural Chemical	**Co., N. Y., N. Y.**										
32109	Acid Phosphate 14%	Baltimore	.....	.....	.....	.....	.70	.....	14.16	14.00	10.05	9.80
32004	Acid Phosphate 16%	Baltimore	.....	.....	.....	.....	.95	.....	15.76	16.00	11.22	11.20
32450	Acid Phosphate 16%	Gr'nsboro(W.E.O.)	.....	.....	.....	.....	2.25	.....	15.86	16.00	11.55	11.20
32465	Acid Phosphate 16%	Easton (L.W.T.)	.....	.....	.....	.....	.55	.....	15.18	16.00	10.74	11.20
32124	Ammoniated Fertilizer	Baltimore	2.44	3.00	.....	.....	3.20	.....	9.93	10.00	20.97	22.00
32039	Basic Lime Phosphate	Baltimore	.....	.....	.....	...	1.20	....	13.34	13.00	9.58	9.10
32040	Bone Meal	Baltimore	1.84	2.00	...	.....	*13.47	*13.73	.....	.....	14.10	14.87
32025	Diam. State Phos. & Pot. (L.G.)	Baltimore	.....	.....	2.03	2.00	.75	.....	8.67	8.00	13.40	17.60
32225	Dead Shot Phos. (Low Grade)	Baltimore	.60	.50	2.02	2.00	1.08	.....	8.42	8.00	23.37	22.00
32051	Dissolved Animal Bone	Baltimore	2.34	2.50	.....	.....	2.00	.....	12.04	12.00	22.20	22.00
32026	Fine Ground Bone	Baltimore	3.33	3.00	.....	.....	*23.37	*22.88	.....	....	25.01	23.44
32234	Fish Guano.	Ashton	1.04	1.00	1.96	3.00	1.45	.....	7.60	6.00	24.10	28.00
32189	Gem Alkaline Phos. Spec. (L.G.)	Baltimore	.....	.....	1.02	1.00	.83	.....	10.06	10.00	13.33	13.00
32043	High Grade Ground Bone	Baltimore	4.02	4.00	.....	.....	*21.78	*20.59	.....	.....	26.97	26.30
32451	Pure Raw Bone	Gr'nsboro (W.E.O.)	4.64	4.50	.....	.....	*20.15	*21.51	.....	.....	28.64	28.76
32285	Pure Raw Bone.	Whiteford	4.62	4.50	.....		*20.88	*21.51	.....	.....	28.92	28.76
32159	Special Potash Mixture	Parkton	2.03	2.00	2.92	3.00	1.35	.....	5.93	6.00	32.11	32.00
32092	Spec. XXX Phos. & Potash	Baltimore	.....	.....	2.38	2.00	.93	.....	15.33	14.00	25.20	21.80
32199	Spec. XXX Phos. & Potash	Baltimore	.....	.....	1.78	2.00	.78	.....	14.65	14.00	21.10	21.80
32115	Tip Top Fertilizer	Baltimore	.97	1.00	3.03	3.00	1.38	.....	7.59	8.00	30.20	30.00

	A. A. C. Co., (Canton), Balto., Md.											
32081	Baker's Fish Guano	Baltimore	1.62	2.00	1.72	2.00	1.98	.....	7.72	8.00	$25.31	$28.00
32063	Baker's Spec. Wht. C. & G. M.	Baltimore	1.16	1.00	2.12	2.00	1.85	.....	8.40	9.00	26.50	25.00
32137	Harrow Brand Crop Gr wer	Thurmont	1.02	1.00	1.04	1.00	.65	.....	8.29	8.00	18.87	18.00
32073	Resurgam Guano Special	Baltimore	1.02	1.00	3.02	3.00	2.13	.....	8.02	8.00	31.07	30.00
32093	Soluble Phosphate & Potash	Baltimore	.....	.....	1.88	2.00	.98	.....	10.02	10.00	18.49	19.00
32223	Soluble Alkaline Phosphate	Baltimore	.....	.....	2.03	2.00	.93	.....	12.02	12.00	20.78	20.40
	A. A. C. Co., (Detrick), Balto., Md.											
32166	Corn & Oats Fertilizer	Baltimore	1.19	1.00	2.66	3.00	1.95	.....	8.17	9.00	29.67	31.00
32239	Grain & Grass Compound	Baltimore	.92	1.00	3.32	3.00	1.75	.....	8.40	9.00	32.70	31.00
32138	Imperial Compound	Graceham	1.01	1.00	2.12	2.00	1.30	.....	7.75	8.00	25.03	24.00
32099	Kangaroo Komplete Kompound	Baltimore	1.62	2.00	2.78	3.00	2.00	.....	8.49	8.00	32.45	34.00
32176	Paragon Amm'n't'd Bone(L.G.)	Hampstead	1.01	1.00	1.03	1.00	1.13	.....	7.51	7.00	18.18	17.00
32064	P & B Special Fert.—Revised	Baltimore	.....	.....	1.66	2.00	1.08	.....	12.39	12.00	18.85	20.40
32217	Phosphate & Potash Mixture	Baltimore	.....	....	1.96	2.00	.80	.....	11.06	11.00	19.66	19.70
32200	Soluble Phosphate & Potash	Baltimore	.....	.....	2.02	2.00	.60	.....	10.40	10.00	19.52	19.00
32201	Victory Alkaline Bone Special	Baltimore	.....	.....	2.02	2.00	.68	.....	14.74	14.00	22.58	21.80
	A. A. C. Co., (Dudley & Carpenter), Balto., Md.											
32100	Special Wheat Mixture	Baltimore	.....	.....	2.04	2.00	1.25	.....	11.42	12.00	20.48	20.40
	A. A. C. Co., (Lazaretto), Balto., Md.											
32082	Ammoniated Phosphate	Baltimore	1.09	1.00	2.14	2.00	1.48	.....	8.02	8.00	25.81	24.00
32083	Crop Grower	Baltimore	1.83	2.00	2.06	2.00	2.20	.....	7.60	8.00	28.16	28.00
32070	Dissolved Phosphate & Potash	Baltimore	.....	.....	2.02	2.00	1.05	.....	9.76	10.00	19.16	19.00
32125	Excelsior AAA (Low Grade)	Baltimore	.87	1.00	1.22	1.00	1.35	.....	7.10	7.00	18.44	17.00
32251	Farmers Favorite	Ellicott City	1.01	1.00	1.06	1.00	1.33	.....	8.31	8.00	19.24	18.00
32005	Farmers Reliable	Baltimore	1.88	2.00	3.02	3.00	1.75	.....	7.49	8.00	33.83	34.00
32252	Forsythe & Linthicum Mix.-Rev.	Ellicott City	2.27	2.25	3.08	3.00	4.90	.....	9.21	9.00	38.73	36.00
32101	H. G. Phosphate & Potash	Baltimore	.....	.....	2.14	2.00	1.10	.....	11.94	12.00	21.42	20.40
32177	Retriever Ani. Bone Fert. Spec.	Hampstead	2.03	2.25	3.20	3.00	4.30	.....	9.53	9.00	38.57	36.00
32253	Special Ammoniated Compound	Ellicott City	1.28	1.25	3.02	3.00	1.33	.....	9.16	9.00	32.93	32.00
32190	Spec. Wheat & Grass Fert.-Rev.	Baltimore	.90	1.00	3.06	3.00	1.25	.....	8.02	8.00	30.48	30.00
	A. A. C. Co., (Maryland), Balto., Md.											
32094	Bono Phosphate	Baltimore	.....	.....	2.12	2.00	.98	.....	9.81	10.00	19.79	19.00
	A. A. C. Co., (Nickerson), Easton, Md.											
32259	Alkaline Bone & Potash	Baltimore	.....	.....	2.04	2.00	1.00	.....	9.92	10.00	19.38	19.00

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	A. A. C. Co., (Nickerson), Easton,											
32216	Bone & Potash Mixture.....	Baltimore.....	.....	.....	2.12	2.00	.85	.....	12.27	12.00	$21.48	$20.40
32206	Mixture (Low Grade).....	Baltimore.....	.44	.50	2.04	2.00	.98	.....	8.23	8.00	22.[illegible]2	22.00
	A. A. C. Co., (Packers Union), Philadelphia, Pa.											
32139	Banner Wheat Grower	Hancock.	.....	.....	2.06	2.00	.80	.....	9.74	10.00	19.34	19.00
	A. A. C. Co., (Pollock Fertilizer Co.), Balto., Md.											
32095	Ammoniated Super Phosphate..	Baltimore.....	1.91	2.00	2.20	2.00	2.43	.....	7.23	8.00	29.04	28.00
32513	Dissolved Animal Bone.....	Baltimore.....	2.46	2.50	...	.....	2.18	.....	11.94	12.00	22.65	22.00
32531	Dissolved S. C. Phosphate.....	Baltimore.....	.....	.....	.....	.....	1.35	.....	13.15	14.00	9.48	9.80
32514	High Grade Super Phosphate....	Baltimore.....	.....	.....	.....	.....	2.13	.....	15.93	16.00	11.58	11.20
32052	Owl Brand Guano—Rev. (L. G.)	Baltimore.....	.53	.50	1.94	2.00	1.00	....	8.01	8.00	22.17	2 .00
32522	Pure Raw Bone.....	Baltimore.....	4.68	4.50	.....	.....	*20.61	*21.51	.....	.....	29.03	28.76
32126	Soft Ground Bone.	Baltimore.....	2.88	3.00	.....	.....	*14.52	*13.73	.....	.....	18.78	18.87
32053	Soluble Phosphate.....	Baltimore.....	.....	.....	1.96	2.00	.90	.....	9.59	10.00	18.65	19.00
32191	Special Invigorator.....	Baltimore.....	.90	1.00	3.06	3.00	1.00	.....	8.01	8.00	30.37	30.00
32544	Special Wheat & Grass.....	Baltimore.....	.94	1.00	1.86	2.00	1.70	.....	7.55	8.00	23.[illegible]5	24.00
32071	Victor Brand Phosphate (L. G.)	Baltimore.....	.....	.....	1.02	1.00	.85	.....	10.16	9.00	13.40	12.30
	A. A. C. Co., (Susquehanna), Balto., Md.											
32218	Crop Grower (Low Grade).....	Baltimore.....	1.04	1.00	1.02	1.00	1.20	.....	7.14	7.00	17.90	17.00
32140	XXV Phosphate	Rocky Ridge.....	.85	1.00	1.16	1.00	1.18	.....	8.10	8.00	18.93	18.00
	A. A. C. Co., (J. E. Tygert Co:), Phila., Pa.											
32096	Acid Phosphate.....	Baltimore.....	.....	.....	.....	.....	.85	.....	14.07	14.00	10.02	9.80

32224	Dissolved Phos. & Potash (L. G)	Baltimore	.....	.....	1.08	1.00	.65	.....	10.79	10.00	$14.16	$18.00
32041	Golden Harvest Phos. (L. Gr.).	Baltimore	.67	.50	2.02	2.00	1.75	.....	7.94	8.00	23.44	22.00
32044	Quakers Special Fertilizer	Baltimore	1.01	1.00	3.08	3.00	1.63	.....	7.89	8.00	31.06	30.00
32084	Soluable Phosphate & Potash..	Baltimore	.....	..	1.80	2.00	.90	.....	10.02	10.00	17.99	19.00
32097	Standard Fertilizer	Baltimore	1.77	2.00	2.26	2.00	1.95	.....	7.72	8.00	29.14	28.00
32085	Vegetable & Corn Fert. Spec...	Baltimore	1.86	2.00	3.08	3.00	2.40	.....	7.16	8.00	34.04	34.00
	A. A. C. Co., (Wheeler), Rutland, Vt.											
32131	All Crop Grower	Mt. Airy	.....	.....	2.02	2.00	.53	.....	14.96	14.00	22.70	21.80
32102	Peerless Acid Phosphate	Baltimore		.....	.....	....	.75	.....	14.03	14.00	9.97	9.80
32167	Royal Wheat Grower	Baltimore	1.04	1.00	1.88	2.00	1.50	.....	8.70	8.00	24.74	24.00
32132	Special Tomato Fertilizer	Mt. Airy	1.01	1.00	1.05	1.00	2.00	.....	7.37	8.00	18.51	18.00
32133	Wheat & Clover Fertilizer	Mt. Airy	.....	.....	2.08	2.00	1.05	.....	9.76	10.00	19.52	19.00
	A. A. C. Co., (Zell), Baltimore, Md.											
32160	Ammoniated Super Phosphate..	Uppercoe	2.01	2.00	2.08	2.00	1.95	.....	7.52	8.00	28.82	28.00
32054	Electric Phosphate	Baltimore	.....	.....	1.94	2.00	.80	.....	10.17	10.00	18.92	19.00
32161	Economizer	Uppercoe	1.02	1.00	1.86	2.00	1.80	.....	7.84	8.00	23.80	24.00
32229	Hustler Phosphate	Baltimore	1.03	1.00	3.16	3.00	1.63	.....	9.01	9.00	32.74	31.00
32110	Little Treasure (Low Grade)..	Baltimore	.96	1.00	1.06	1.00	1.25	.....	7.02	7.00	17.60	17.00
	American Fertilizing Co., Balto., Md.											
32027	Alkaline Super-Phos. (L. Gr.)	Baltimore	.....	.....	1.96	2.00	1.63	....	9.16	8.00	18.50	17.60
32207	Ammoniated Bone Compound...	Baltimore	1.01	1.00	2.06	2.00	2.18	1.00	8.42	8.00	25.69	24.00
32048	Dissolved Bone & Potash	Emmitsburg	.....	....	1.68	2.00	1.80	.....	10.22	10.00	17.59	19.00
32297	Fish & Bone Compound	Half Way	1.77	2.00	3.12	3.00	1.92	1.00	8.52	8.00	35.09	34.40
32002	Grain & Grass Grower	Baltimore	1.02	1.00	2.82	3.00	1.63	1.00	9.37	9.00	31.02	31.40
32059	High Grade Acid Phosphate...	Baltimore	.....	.....	....	.....	1.15	....	14.55	14.00	10.42	9.80
32074	High Grade Acid Phosphate ...	Baltimore	.....	...	.....	.....	1.33	.....	16.35	16.00	11.72	11.20
32294	H. G. Special Compound Guano	Emmitsburg	1.02	1.00	2.96	3.00	1.45	1.00	7.25	7.00	29.67	29.40
32761	Spec. Comp'd Guano (L. Gr)	.....	.51	.50	3.08	3.00	1.75	1.00	7.51	7.00	28.73	27.40
32208	Premium Phosphate & Potash..	Baltimore	.....	.....	2.12	2.00	2.33	..	11.49	12.00	21.23	20.40
32028	Reliable Guano	Baltimore	1.13	1.00	1.18	1.00	.95	1.00	8.02	8.00	20.00	18.40
32136	Reliable Guano	Rocky Ridge	.96	1.00	1.01	1.00	2.10	1.00	8.18	8.00	18.92	18.40
32086	Victor Phosphate & Potash.	Baltimore	.....	.....	1.72	2.00	1.75	.....	14.24	14.00	20.64	21.80
	Armour Fertilizer Works, Balto., Md.											
32006	Acid Phosphate	Baltimore	.....	.....	.....	.....	.70	.....	15.81	16.00	11.21	11.20
32033	Bone Meal	Baltimore	3.03	3.00	....	....	*24.37	*22.00	....	.....	24.31	23.00
32127	Champion	Baltimore	1.69	2.00	2.58	3.00	1.75	.....	9.20	9.00	32.14	35.00
32128	Crop Grower	Baltimore	.87	1.00	1.96	2.00	1.15	.....	7.30	8.00	23.00	24.00

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Armour Fertilizer Works, Balto., Md.											
32045	Farmers Choice	Baltimore	.96	1.00	3.06	3.00	.83	.....	8.86	9.00	$31.39	$31.00
32283	Grain Grower	.....	1.89	2.00	2.03	2.00	1.40	.....	7.75	8.00	28.05	28.00
32029	Phosphate & Potash	Baltimore	.....	.....	2.02	2.00	1.15	.....	11.41	12.00	20.34	20.40
32007	Phosphate & Potash No. 1	Baltimore	.....	.....	1.90	2.00	.98	.....	9.16	10.00	18.01	19.00
32046	Raw Bone Meal	Baltimore	4.57	4.50	.....	.....	*21.52	*21.50	.....	.....	29.04	28.75
32103	Royal	Baltimore	1.01	1.00	2.92	3.00	1.08	.....	8.93	9.00	30.92	31.00
32452	Special Mixture	Mt. Airy (C.E.A.)	1.83	1.80	2.54	2.50	3.78	.....	11.71	12.70	35.78	34.90
32018	Star Phosphate	Baltimore	.....	.....	.....	.....	.70	.....	14.01	14.00	9.95	9.80
32260	3-8-3 Fertilizer	Hebron	2.24	3.00	3.34	3.00	1.13	.....	8.48	8.00	37.93	38.00
32178	Wheat, Corn & Oat Special	Hampstead	.80	1.00	1.04	1.00	.98	.....	6.43	7.00	16.26	17.00
32008	Wheat Grower	Baltimore	2.03	2.00	3.02	3.00	1.00	.....	7.93	8.00	34.57	34.00
	Atlantic Fertilizer Works, Balto., Md.											
32066	Blood, Bone & Potash	Baltimore	3.17	3.00	2.88	3.00	1.25	.....	7.44	8.00	34.90	38.00
32231	Dissolved Phosphate	Baltimore	.....	.....	.....	.....	.85	.....	15.50	16.00	11.02	11.20
32067	GGG Golden Grain Grower	Baltimore	1.54	2.00	1.10	1.00	1.43	.....	8.42	9.00	21.75	23.00
	C. A. Baile & Co., Medford, Md.											
32171	No. 3 Bone Phosphate	Medford	.96	1.00	2.05	2.00	1.83	.....	8.15	8.00	25.02	24.00
	Baltimore Fertilizer Co., Balto., Md.											
32036	Honest Acid Phosphate	Baltimore	.....	.....	.....	.....	1.25	1.00	15.33	14.00	10.98	10.00
32037	Honest Acid Phosphate	Baltimore	.....	.....	.....	.....	1.25	1.00	16.02	16.00	11.46	11.40
32075	Honest A. K. Bone	Baltimore	.....	.....	1.04	1.00	1.25	.....	12.62	12.00	15.32	14.40

32240	Honest Ammoniated Bone	Baltimore	2.01	2.00	1.80	2.00	.60	.....	7.90	8.00	$26.98	$28.00
32111	Honest Crop Grower	Baltimore	.85	1.00	1.08	1.00	.60	.....	8.02	8.00	18.14	18.00
32180	Honest Harvest	Lineboro	1.18	1.25	1.14	1.00	.78	.....	8.35	9.00	20.22	20.00
32076	Old Honesty, (Low Grade)	Baltimore	.84	1.00	.62	.50	.45	.....	8.40	8.00	15.66	15.00
32202	No. 1 Dis. Animal Wheat Gr.	Baltimore	1.45	1.00	.....	.....	.75	.....	9.93	10.00	16.03	14.00
32042	No. 2 Dis Ani. Wh't & Grass Gr.	Baltimore	1.71	2.00	.....	.....	2.08	.....	10.61	10.00	18.23	18.00
32009	No. 3 Dis. Ani. Wheat Spec.	Baltimore	1.11	1.00	.....	.....	.73	.....	9.52	10.00	14.25	14.00
	Baltimore Pulverizing Co., Balto., Md.											
32112	Farmers Fav. Fert. (L. G.)	Baltimore	1.08	1.00	1.60	1.00	1.10	.....	9.02	7.50	23.38	17.50
32077	Harvest Queen	Baltimore	.90	1.00	2.62	2.00	1.28	.....	8.87	10.00	28.70	26.00
32203	Pennimans Excelsior	Baltimore	.....	.....	1.03	1.00	1.60	.....	11.18	12.00	14.33	14.40
32078	Peerless Potash	Baltimore	.....	.....	1.40	1.00	2.00	.....	9.38	12.00	15.37	14.40
32113	Royal Compound	Baltimore	2.06	2.00	2.03	2.00	.78	.....	8.42	8.00	29.15	28.00
32286	S. C. Phosphate	Baltimore	.....	.....	.....	.....	.22	1.00	16.57	16.00	11.64	11.40
32072	Special Strawberry Compound	Baltimore	3.87	4.00	2.24	2.00	.63	.....	7.07	7.00	36.24	35.00
32114	Spec. Spr. & Fall Mix. (L. Gr.)	Baltimore	.....	.....	1.20	1.00	.55	1.00	7.04	8.00	12.24	11.80
	Baugh & Sons Co., Baltimore, Md.											
32010	Acid Phosphate, 16%	Baltimore	.....	.....	.....	.....	.75	.....	16.45	16.00	11.67	11.20
32011	Acid Phosphate, 16%	Baltimore	.....	.....	.....	.....	.53	.....	16.77	16.00	11.85	11.20
32468	Acid Phosphate, 16%	Cecilton (E.N.C.)	.....	.....	.....	.....	.25	.....	17.05	16.00	11.99	11.20
32055	Ammoniated Super-Phosphate	Baltimore	1.40	1.25	.....	.....	2.38	.....	9.65	10.00	16.20	15.00
32019	Animal Base & Pot. Compound	Baltimore	2.03	2.00	1.92	2.00	1.45	.....	8.75	8.00	28.97	28.00
32162	Complete Ani Base Fert. Rev.	Sparks	1.91	2.00	2.05	2.00	1.90	.....	9.74	10.00	30.44	30.00
32034	Double Eagle $25.00 Phosphate	Baltimore	2.06	2.00	1.18	1.00	1.65	.....	8.31	8.50	24.29	22.50
32141	Excelsior Guano-Revised	Monrovia	1.37	1.25	1.62	2.00	2.50	.....	9.92	10.00	26.12	27.00
32290	Excelsior Guano-Revised	.....	1.13	1.25	1.78	2.00	1.35	.....	10.32	10.00	26.06	27.00
32079	Export Bone with Potash	Baltimore	1.69	2.00	1.62	2.00	*12.43	*11.00	.....	.....	22.70	25.50
32288	Fine Ground Bone	Baltimore	3.44	3.00	.....	.....	*16.46	*16.49	.....	.....	21.99	20.25
32000	Fish Mixture	Baltimore	1.79	2.00	2.18	2.00	1.23	.....	9.69	8.00	30.42	28.00
32030	General Crop Grower	Baltimore	1.16	1.00	1.05	1.00	2.18	.....	8.15	8.00	19.96	18.00
32049	General Crop Grower	Monrovia	1.08	1.00	1.02	1.00	2.00	.....	7.72	8.00	18.96	18.00
32056	Half & Half Mixture	Baltimore	1.66	1.50	.....	.....	8.00	.....	11.13	19.00	20.97	25.00
32280	High Grade Acid Phosphate	Conowingo	.....	.....	.....	.....	.48	.....	15.93	14.00	11.25	9.80
32293	High Grade Acid Phosphate	.....	.....	.....	.....	.....	.30	.....	16.50	14.00	11.61	9.80
32205	High Grade Potash Mixture	Baltimore	.....	.....	1.84	2.00	.60	.....	13.36	13.00	20.51	21.10
32012	Old Stand-By Dis Ani. Base	Baltimore	1.89	2.00	.....	.....	2.20	.....	12.40	12.00	20.84	20.00
32152	Pure Dissolved Animal Bones	Gaithersburg	2.63	2.50	.....	.....	4.83	.....	12.07	13.00	24.52	23.00
32057	Pure Steamed Bone Meal	Baltimore	2.17	2.00	.....	.....	*28.37	*25.19	.....	.....	22.87	20.60

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Baugh & Sons Co., Baltimore, Md.											
32035	Pure Steamed Bone Meal	Baltimore	3.26	2.00	.....	.....	*28.42	*25.19	.....	.....	$27.25	$20.60
32031	Raw Bone Meal	Baltimore	4.53	4.50	.....	.....	*21.01	*21.50	.....	.....	28.63	28.75
32255	Special Potato Manure	Laurel	2.39	2.00	9.62	10.00	1.90	.....	5.86	8.00	73.90	76.00
32088	Wheat Fertilizer	Baltimore	2.15	2.00	.90	1.00	3.48	.....	9.05	10.00	24.44	24.00
	R. P. Beckley, Half Way, Md.											
32142	Bone Mixture	Chewsville	1.38	1.50	.....	.....	1.05	.....	13.06	14.00	19.00	20.00
	Beck-Walker Co., Chestertown, Md.											
32169	High Grade Acid Phosphate	Baltimore	.....	.....	.....	.....	.25	.....	15.79	14.00	11.10	9.80
32249	Wheat Fertilizer	Crumpton	1.04	1.00	.....	.....	2.15	.....	12.04	11.50	17.06	15.50
	N. T. Bennett, New Windsor, Md.											
32181	Butcher House Phosphate	New Windsor	1.14	1.00	2.44	2.00	1.38	.....	10.17	9.00	29.92	25.00
32183	1-10-1	New Windsor	1.19	1.00	1.48	1.00	1.50	.....	11.33	10.00	25.57	20.00
32182	Soluble Wheat Grower Phos	New Windsor	1.02	1.00	1.86	2.00	2.05	.....	7.82	8.00	23.88	24.00
	Berg Company, Philadelphia, Pa.											
32001	Animal Bone & Meat	Baltimore	3.86	4.00	.....	.....	*11.48	*17.00	.....	.....	21.18	24.50
32246	Raw Bone	Fallston	3.53	3.84	.....	.....	*19.64	*22.00	.....	.....	24.14	26.36
32247	Standard Bone Manure	Fallston	3.04	3.84	.....	.....	2.30	.....	8.01	8.00	21.09	23.36
	W. H. Bixler, Hagerstown, Md.											
32143	Bone Phosphate	Hagerstown	2.34	2.00	1.24	1.00	5.75	.....	8.71	8.00	27.81	22.00

	Bowker Fertilizer Co., Balto., Md.											
32060	Fine Ground Bone	Baltimore	3.53	3.00	.....	.....	*23.19	*22.88	.....	.....	$25.72	$23.44
32061	Potato & Vegetable Fertilizer	Baltimore	3.01	3.00	3.05	3.00	1.85	.....	10.03	10.00	41.11	40.00
	Bryant Fertilizer Co., Alexandria, Va.											
32153	Bone & Potash Mixture	Travilah	.....	.....	2.03	2.00	2.45	.....	9.43	10.00	19.27	19.00
32455	Formula "E"	Rockville (J.W.N.)	1.76	2.00	2.32	2.00	.80	1.00	7.68	8.00	28.96	28.40
32154	High Grade Tankage	Seneca	10.11	10.00	.....	.....	*8.69	*5.00	.....	.....	44.86	42.50
32222	Phosphate, 16%	Baltimore	.....	.....	.....	.....	2.55	.....	15.72	16.00	11.51	11.20
32454	Phosphate, 16%	Rockville (J.W.N.)	.....	.....	.....	.....	1.48	.....	17.09	16.00	12.26	11.20
32210	Potash Mixture 12-2—Revised	Baltimore	.....	.....	1.70	2.00	2.38	.....	12.08	12.00	19.14	20.40
32211	Queen Ammoniated Dis. Bone	Baltimore	1.04	1.00	1.40	1.00	1.88	1.00	8.40	8.00	21.71	18.40
32155	Regal Fish, Bone & Potash	Travilah	1.57	2.00	2.72	3.00	1.93	.....	8.64	8.00	32.01	34.00
32170	S. C. Dissolved Bone	Baltimore	.....	.....		.....	1.75	.....	14.35	14.00	10.40	9.80
32456	Special Fish Mixture	Rockville (J.W.N.)	1.02	.82	2.94	3.00	1.63	1.00	8.13	8.00	30.50	29.68
32156	10-4	Seneca	.....	.....	4.10	4.00	1.78	.....	9.62	10.00	31.69	31.00
	Herbert Bryant's Son, Alexandria, Va.											
32119	Empress Ammoniated Dis. Bone	Germantown	1.02	1.00	1.04	1.00	1.08	.....	8.02	8.00	18.77	18.00
32121	Fish, Bone & Potash	Highland	1.84	2.00	2.24	2.00	1.15	.....	9.78	8.00	31.04	28.00
32157	High Grade Acid Phospate	Potomac	..	.....	.....	.....	1.05	.....	16.02	16.00	11.42	11.20
32120	Stand. Empress Amm't'd Bone	Dickerson	1.26	1.25	.....	.....	1.53	.....	9.67	10.00	15.32	15.00
32158	Standard Fish & Bone	Washington Grove	2.04	2.00	.....	.....	2.38	.....	9.32	10.00	18.43	18.00
32459	Standard Fish & Bone	Brookville (D.F.O.)	2.24	2.00	.....	.....	2.00	.....	9.91	10.00	19.67	18.00
	C. C. Company, Thomas Fertz. Wks., Hagerstown, Md.											
32235	Bone Compound	William sport	1.33	1.50	.....	.....	1.15	.....	13.43	14.00	19.21	20.00
32476	Bone Compound	Hagerst'n (W.D.C.)	1.54	1.50	.....	.....	1.25	.....	14.48	14.00	21.14	20.00
32236	Dissolved Bone	Big Spring	2.35	2.50	.....	.....	2.35	.....	12.17	13.00	22.51	23.00
32144	Dissolved Phosphate	Myersville	.....	..	.....	.....	.60	.....	13.84	14.00	9.81	9.80
32145	Dissolved Phosphate	Myersville	.....	.....	.....	.....	1.00	.....	15.77	16.00	11.24	11.20
32237	Fish, Bone & Potash	Big Spring	1.06	1.25	1.76	2.00	1.08	.....	8.01	8.00	23.24	25.00
32146	Golden Sheaf	Myersville	1.02	1.00	.82	1.00	1.13	.....	8.11	8.00	17.56	18.00
32147	Pride of the Valley	Graceham	1.01	1.00	.....	.....	1.00	.....	9.44	10.00	13.88	14.00
32238	Special Bone Mixture	Hagerstown	1.77	2.00	.....	.....	2.00	.....	8.55	10.00	16.43	18.00
	Chesapeake Chemical Co., Balto., Md.											
32192	Alkaline 12 & 1	Baltimore	.....	.....	.90	1.00	3.75	.....	10.26	12.00	13.33	14.40
32020	Dissolved Phosphate, 14%	Baltimore	.....	.....	.....	.....	.53	.....	15.70	14.00	11.10	9.80
32105	Dissolved Phosphate, 16%	Baltimore	.....	.....	.....	.....	.63	.....	16.25	16.00	11.51	11.20

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Chesapeake Chemical Co., Balto., Md.											
32193	Money Producer	Baltimore	1.38	1.00	1.54	1.00	1.68	.....	7.84	8.00	$23.27	$18.00
32209	Special Mixture (Low Grade)	Baltimore	.77	.75	.....	.....	.33	.....	13.78	12.00	16.99	15.00
	John L. Clark, Ellicott City, Md.											
32254	Clarkson Mixture	Ellicott City	2.51	2.50	.....	.....	4.28	.....	12.78	12.50	24.53	22.50
	Coe-Mortimer Co., New York, N. Y.											
32256	Columbia Corn & Pot. Spec.	Laurel	1.43	1.50	1.86	2.00	1.67	.....	8.42	8.00	25.97	26.00
32257	H. G. Soluble Phosphate	Laurel	.....	....	.....	.....	1.43	.....	14.02	14.00	10.10	9.80
32258	Pennsylvania No. 1 Grain Spec.	Laurel	1.01	1.00	2.92	3.00	1.65	.....	7.72	8.00	29.94	30.00
	Columbia Guano Co., Balto., Md.											
32163	Special Grange Formula	Sparks	1.04	1.00	2.78	3.00	1.10	.....	9.05	9.00	30.33	31.00
	Henry Cope & Co., Lincoln Univ., Pa.											
32164	Acid Phosphate	Rising Sun	.....	....	.....	.....	2.75	.....	14.07	14.00	10.40	9.80
	Josiah Cope & Co., Baltimore, Md.											
32171	Acidulated Phosphate	Baltimore	.....	.....	.....	.....	.60	.....	14.03	14.00	9.94	9.80
32089	Ammoniated Phosphate	Baltimore	.97	1.00	3.16	3.00	1.35	.....	7.42	8.00	30.80	30.00
32233	Ammoniated Phosphate	Baltimore	.89	1.00	2.76	3.00	1.55	.....	8.32	8.00	29.06	30.00
32090	Soluble Phosphate & Potash	Baltimore	.....	.....	1.88	2.00	1.00	.....	9.81	10.00	18.35	19.00
32230	Special Ammoniated Mixture	Baltimore	1.93	2.00	2.04	2.00	2.58	.....	7.38	8.00	28.37	28.00
32058	Wheat & Grass Special	Baltimore	1.08	1.00	.90	1.00	1.90	.....	7.62	8.00	18.10	18.00

	Joshua W. Dorsey, Ellicott City, Md.											
32122	Mixture "D"	Highland	2.32	2.25	2.28	2.00	1.95	1.50	8.86	9.00	$32.60	$30.60
	Edelen Brothers, Baltimore, Md.											
32129	Special Wheat & Grain Mixture	Baltimore	1.19	1.00	2.18	2.00	1.13	.....	9.18	9.00	27.47	25.00
	John A. Englar, Linwood, Md.											
32267	Acid Phospeate, 16%	Linwood	.....	.....	.....	.....	.43	.....	15.70	16.00	11.08	11.20
32268	No. 1 Ammoniated Bone	Linwood	1.83	2.00	1.28	2.00	2.33	.....	8.14	8.00	24.07	28.00
32269	No. 2 Ammoniated Bone	Linwood	1.01	1.00	1.94	2.00	1.55	.....	7.62	8.00	23.92	24.00
	W. S. Farmer & Co., Balto., Md.											
32021	B & P Phosphate	Baltimore	.....	....	2.04	2.00	.68	.....	10.32	10.00	19.60	19.00
32227	Clyde Brand	Baltimore	.78	1.00	1.94	2.00	1.28	.....	7.55	8.00	22.82	24.00
32032	Dissolved S. C. Phosphate	Baltimore	.....	.....	.....	.....	1.28	.....	14.17	14.00	10.18	9.80
32065	Harvest Queen	Baltimore	1.28	1.25	2.82	3.00	2.28	.....	8.02	9.00	30.97	32.00
32038	Pure Raw Bone	Baltimore	4.64	4.50	.....	.....	*19.89	*21.51	.....	.....	28.51	28.76
	Farmers' Fertilizer Co., Union Bridge, Md.											
32270	Potash Phosphate 10 & 2	Union Bridge	.....	.....	2.02	2.00	.85	.....	9.91	10.00	19.23	19.00
32148	Union Bridge Favorite	Walkersville	1.04	1.00	1.88	2.00	1.48	.....	7.61	8.00	23.64	24.00
	Fermers' Fertilizer & Feed Co., Westminster, Md.											
32184	Acid Phosphate	New Windsor	.....	.....	.....	.....	.30	.....	17.28	16.00	12.16	11 20
32271	H G. Phosphate	Westminster	2.08	2.00	1.94	2.00	1.78	1.00	11.61	11.00	32.28	31 10
32272	No. 1 Bone Phosphate	Westminster	2.42	2.50	2.26	2.00	2.13	2.00	9.83	9.00	33.92	31.80
32134	XX Bone Phosphate	Westminster	1.09	1.00	1.40	2.00	1.15	1.00	10.87	9.00	24.09	25.40
	Farmers & Planters Co., Salisbury, Md.											
32262	Fish Mixture	Princess Anne	2.01	2.00	1.48	2.00	1.83	.....	8.53	8.00	26.18	28.00
32264	General Crop Grower Mixture	Princess Anne	1.06	1.00	1.78	2.00	.95	.....	9.68	10.00	24.98	26.00
32263	High Grade Acid Phosphate 14%	Salisbury	....	..	.....	.....	.35	.....	14.02	14.00	9.88	9.80
32265	1½-8-1	White Haven	1.16	1.50	.58	1.00	1.48	.....	9.17	8.00	17.88	20.00
32108	Potato Guano.	Princess Anne	2.93	3.00	1.04	2.00	1.25	.....	9.70	10.00	28.16	34.00
32266	Wheat Special Bone Mixture	Salisbury	1.37	1.50	.90	1.00	1.10	.....	9.39	8.00	20.71	20.00
	Griffith & Boyd Co., Balto., Md.											
32194	Alkaline Mixture (Low Grade)	Baltimore	.....	.....	1.06	1.00	.98	.....	10.53	10.00	13.93	13.00
32289	Ammoniated Bone Phosphate	.....	1.72	2.00	1.54	1.25	1.30	.....	9.19	8.00	25.83	23.50
32149	Farmers Bone Mixture	Chewsville	1.47	2.00	.....	.....	2.10	.....	9.02	9.00	15.74	17.00
32013	Farmers Potato & Tomato	Baltimore	1.06	1.50	1.84	2.00	1.53	.....	8.66	8.00	24.55	26.00
32014	Fish, Bone & Potash	Baltimore	1.45	1.75	1.54	2.00	1.18	.....	8.48	7.00	23.99	26.00

* Total Phosphoric Acid.

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							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Griffith & Boyd Co., Balto., Md.											
32292	Fish Bone & Pot sh	.....	1.57	1.75	1.60	2.00	1.00	.....	8.52	7.00	$24.80	$26.00
32080	Harvest Queen Phosphate	Baltimore	.80	1.00	1.56	2.00	1.60	.....	9.08	9.00	22.28	25.00
32291	Harvest Queen Phosphate	.....	.87	1.00	1.50	2.00	1.32	.....	10.11	9.00	23.12	25.00
32022	High Grade Acid Phosphate	Baltimore	.....	.....	.....	.....	.70	.....	15.19	14.00	10.77	9.80
32150	High Grade Acid Phosphate	Chewsville	.....	.....	.....	.....	.70	.....	16.13	16.00	11.43	11.20
32015	Little Gem (Low Grade)	Baltimore	.....	.....	.68	1.00	2.40	.....	10.21	8.00	11.71	11.60
32047	Peerless Mixture (Low Grade)	Baltimore	.67	.50	.....	.....	2.03	.....	8.73	8.00	12.22	10.00
32016	Pure Dissolved Animal Bone	Baltimore	2.12	2.50	.....	.....	2.95	.....	10.74	10.00	20.40	20.00
32017	Pure Fine Ground Bone Meal	Baltimore	4.03	4.00	.....	.....	*19.67	*22.00	.....	.....	25.96	27.00
32241	Reliable Crop Grower	Baltimore	1.04	1.00	.92	1.00	2.03	.....	9.73	8.00	20.22	18.00
32023	Soluble 12 & 2	Baltimore	.....	.....	1.48	2.00	1.33	.....	12.06	12.00	17.59	20.40
32212	Special Grain Grower	Baltimore	.....	.....	1.26	2.00	1.23	.....	11.65	10.00	15.97	19.00
32087	Special Royal Guano	Baltimore	1.01	1.00	1.52	2.00	1.78	.....	8.72	8.00	22.59	24.00
32219	Valley Fertilizer (Low Grade)	Baltimore	.58	.50	1.40	2.00	2.10	.....	10.05	8.00	21.61	22.00
	Griffith & Turner Co., Balto., Md.											
32242	Amm'd Alk. Plant Food (L Gr.)	Baltimore	1.02	1.00	1.46	1.50	2.10	1.00	7.53	6.50	21.27	19.90
32287	Amm'd Butchers Bone Phos.	Baltimore	1.27	1.25	1.02	1.00	1.40	.....	9.52	9.00	21.28	20.00
32244	Animal Bone Phosphate	Baltimore	2.22	2.50	.88	1.00	1.83	.....	9.77	10.00	24.66	26.00
32245	Soft Ground Bone	Baltimore	1.89	2.00	.....	.....	*26.78	*22.90	.....	.....	20.95	19.45
	Hampstead Fertilizer Co., Hampstead. Md.											
32273	Acid Phosphate 16%	Hampstead	.....	.....	.....	.....	.30	.....	16.28	16.00	11.46	11.20

32274	Grain & Grass Grower	Hampstead	2.01	2.00	2.12	2.00	1.18	.....	8.81	8.00	$30.04	$28.00
32275	Honesty	Hampstead	1.01	1.00	2.48	2.00	1.42	.....	8.02	8.00	27.51	24.00
32276	Standard	Hampstead	1.16	1.25	2.44	2.00	1.40	.....	10.19	10.00	30.08	27.00
	S. M. Hess & Bro., Inc., Phila., Pa.											
32173	Ammoniated Super-Phosphate	Baltimore	1.72	2.00	1.94	2.00	2.10	.....	7.88	8.00	27.24	28.00
32174	Farmers General Fertilizer	Baltimore	1.02	1.00	3.10	3.00	1.10	.....	8.02	8.00	31.14	30.00
32116	High Grade Acid Phosphate	Baltimore	.....	.....	.....	.....	.73	.....	14.03	14.00	9.97	9.80
32106	Keystone Phosphate	Baltimore	1.01	1.00	1.22	1.00	1.93	.....	7.63	8.00	19.76	18.00
32220	Seal Brand Alkaline	Baltimore	.....	.....	2.02	2.00	.93	.....	12.30	12.00	20.92	20.40
	W. H. Hood, Mt. Airy, Md.											
32277	Special Mixture	Mt. Airy	1.04	1.00	1.54	2.00	1.93	.....	11.89	9.00	26.06	25.00
	Horsey, Roe & Co., Greensboro, Md.											
32250	Acid Phosphate 16%	Greensboro	.....	.....	.....	.....	.48	.....	16.07	16.00	11.35	11.20
	Hubbard Fertilizer Co., Balto., Md.											
32185	Alkaline 10 & 1 (Low Grade)	Alesia	.....	.....	1.02	1.00	3.88	.....	10.31	10.00	14.12	13.00
32213	Buyer's Mixture (Low Grade)	Baltimore	.43	.75	.....	....	.48	.....	15.89	12.00	17.80	15.00
32215	Buyer's Mixture	Baltimore	.78	1.00	.....	.....	.33	.....	15.28	14.00	18.53	18.00
32282	Corn & Wheat Fertilizer	Baltimore	.....	....	1.05	1.00	2.05	....	11.69	12.00	14.89	14.40
32069	English Compound	Baltimore	1.14	1.00	1.12	1.00	1.93	.75	7.95	8.00	20.00	18.30
32024	Farmers I. X. L.	Baltimore	2.02	2.00	2.06	2.00	1.43	.....	8.05	8.00	29.06	28.00
32186	Favorite Mixture	Maple Grove	1.38	1.25	1.16	1.00	1.83	.....	9.02	9.00	22.23	20.00
32187	Phosphate 14%	Alesia	.....	.....	.....	.....	1.13	.....	15.50	14.00	11.08	9.80
32188	Phosphate 16%	Boyds	.....	.....	.....	.....	.35	.....	16.95	16.00	11.94	11.20
32135	Phosphate 16%	Mt. Airy	.....	.....	.....	.....	.85	.....	16.25	16.00	11.55	11.20
32477	Phosphate 16%	Poolesv'le (M. M. M)	....	.....	.....	.....	.25	.....	16.78	16.00	11.80	11.20
32107	Pure Bone Meal	Baltimore	4.61	4.50	.....	.....	*24.18	*22.50	.....		30.53	29.25
38123	Special Compound (L. Gr.)	Derwood	.77	.75	.....	.....	1.63	.....	12.75	12.00	16.48	15.00
	M. P. Hubbard & Co., Inc., Balto., Md.											
32196	Celebrated Phosphate	Baltimore	1.83	2.00	2.04	2.00	.93	.....	8.04	8.00	27.97	28.00
32214	Dissolved Phosphate	Baltimore	.....	..	.....	..	.83	.....	16.59	16.00	11.78	11.20
32228	Excelsior Super-Phosphate	Baltimore	.70	1.00	2.10	2.00	.75	1.00	8.65	8.00	24.35	24.40
32248	Fish & Potash (Low Grade)	Aberdeen	.48	.25	.90	1.00	1.95	.....	6.83	7.00	14.92	14.00
32197	Good & Cheap Compound	Baltimore	.75	1.00	1.20	1.00	.68	.....	8.17	8.00	18.64	18.00
32204	Harvest King	Baltimore	1.05	1.00	3.06	3.00	.65	1.00	9.95	9.00	32.77	31.40
32130	Old Economy (Low Grade)	Baltimore	.39	.50	2.22	2.00	1.35		8.05	8.00	23.47	22.00
32198	Pure Raw Bone	Baltimore	5.02	4.50	.....	.....	*22.87	*20.64	.....	.....	31.52	28.32

* Total Phosphoric Acid.

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							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	M. P. Hubbard Co., Inc., Balto., Md.											
32175	Soluble Phosphate & Potash....	Baltimore	.....	.....	2.08	2.00	2.28	.....	8.62	10.00	$18.97	$19.00
32091	Soluble Phosphate.....	Baltimore.....	.....	.....	.....	.....	1.95	1.00	13.37	14.00	9.75	10.00
	Chas. G. Kriel, Baltimore, Md.											
32279	Packing House Tankage.....	Baltimore.....	8.60	8.00	.....	.....	*5.04	*5.00	.....	.....	36.92	34.50
	Lancaster Bone & Fertilizer Co., Lancaster, Pa.											
32722	National Crop Grower (L. Gr.).	Hagerstown.....	.52	.50	.88	1.00	.63	.....	8.01	8.00	15.62	16.00
	Lancaster Chemical Co., Lancaster, Pa.											
32671	General Crop Grower	Rising Sun.....	1.47	2.00	.96	3.00	1.40	1.00	8.64	8.00	20.84	34.40
32672	Keystone Brand (Low Grade)..	Rising Sun.....	.63	1.00	.62	1.00	1.00	1.00	9.65	7.00	16.29	17.40
32673	Wheat & Grass Fertilizer.....	Rising Sun.....	1.08	1.00	.76	2.00	1.38	1.00	8.66	8.00	18.09	24.40
	Lister's Agricultural Chemical Works, Newark, N. J.											
32508	Bone Meal.....	Baltimore.....	3.33	3.25	.....	.....	*22.01	*22.88	.....	.....	24.33	24.44
32679	Buyer's Choice Acid Phos.....	Baltimore.....	.....	.....	.....	.....	.88	.....	14.01	14.00	9.99	9.80
32518	Corn & Potato Fertilizer.....	Baltimore.....	1.93	2.00	3.10	3.00	1.63	.....	7.55	8.00	34.52	34.00
32622	Grain & Grass Fertilizer Rev...	Baltimore.....	.....		2.03	2.00	1.08	.....	10.08	10.00	19.46	19.00
32471	Ground Bone & Tankage.....	Woodbine (C.M.)..	3.28	3.25	.....	.....	*12.15	*12.00	.....	.....	19.20	19.00
32764	Harvest Queen Phosphate.....	.....	1.54	1.50	2.03	2.00	1.95	.....	8.41	9.00	27.53	27.00
32463	Harvest Queen Phosphate.....	Libertytown (M.C.)	1.48	1.50	2.14	2.00	2.23	.65	8.31	9.00	27.96	27.26
32590	High Grade Acid Phosphate....	Baltimore.....	.....	.....	.....	..	.40	.....	16.39	16.00	11.55	11.20
32732	High Grade Grain Grower.....	Forest Hill.....	1.84	2.00	2.80	3.00	2.10	.....	9.54	10.00	34.54	36.00

32774	Special Alkaline Fertilizer	Baltimore	.....	.....	1.90	2.00	.90	.....	12.38	12.00	$20.25	$20.40
32573	Spec. Crop Producer (L Gr.)	Baltimore	1.05	1.00	1.14	1.00	1.50	.....	7.08	7.00	18.72	17.00
32661	Special for Wheat & Rye	Boring	2.03	2.00	1.92	2.00	2.63	.....	7.91	8.00	28.60	28.00
32623	Squirrel Brand Fertilizer	Baltimore	.89	1.00	1.84	2.00	1.83	.....	9.03	8.00	24.36	24.00
32765	Stand. Pure Super-Phos. of Lime	.....	2.70	3.00	1.90	2.00	1.47	.....	9.03	9.00	31.82	33.00
32662	Valley Brand	Boring	1.01	1.00	3.44	3.00	1.65	.....	7.72	8.00	33.06	30.00
	Hugh McAnany, Philadelphia, Pa.											
32574	Quaker City Poudrette (L. Gr.)	Baltimore	1.44	1.50	.22	.48	*3.32	*3.00	.....	.....	8.74	10.38
	Martin Fertilizer Co., Phila., Pa.											
32760	Acid Phosphate	Gaithersburg	.....	.....	.....	.....	.57	.....	15.13	14.00	10.70	9.80
32579	Acid Phosphate	Baltimore	.....	.....	.....	.....	1.35	.....	16.92	16.00	12.11	11.20
32565	Acid Phosphate	Baltimore	.....	.....	.....	.....	.45	.....	16.29	16.00	11.49	11.20
32739	Clarks Standard	Ellicott City	2.39	2.00	1.50	2.00	3.93	.....	8.33	9.00	28.46	29.00
32592	Corn & Cereal Special	Baltimore	2.08	2.00	2.02	2.00	2.65	.....	8.67	8.00	30.17	28.00
32593	Crop Producer	Baltimore	1.09	1.25	...	.....	4.38	.....	8.64	10.00	14.75	15.00
32642	Dissolved Organic Compound	Sykesville	1.26	1.25	1.76	2.00	2.25	.....	9.18	8.00	25.68	25.00
32619	Pure Dissolved Animal Matter	Baltimore	2.03	2.00	.....	.....	4.50		11.15	12.00	21.07	20.00
32643	Pure Ground Bone	Sykesville	2.24	2.00	.....	.....	*23.19	*22.90	.....	.....	20.56	19.45
32634	Pure Raw Bone Meal	Gaithersburg	4.52	4.50	.....	.....	*23.33	*21.00	.....	.....	29.75	28.50
32644	Sure Grower	Sykesville	.89	1.00	1.08	1.00	2.18	.....	8.18	8.00	19.09	18.00
32766	Three, Eight & Two	Leslie	2.93	3.00	1.88	2.00	3.60	.....	8.08	8.00	32.52	32.00
	F. Mehring, Keymar, Md.											
32687	Acid Phosphate	Keymar	.....	.....	.....	.....	2.40	1.00	15.82	16.00	11.55	11.40
32688	Dissolved Raw Bone	Keymar	2.10	2.00	.....	.....	3.50	1.00	14.02	14.00	23.82	22.40
32689	Emmerts Half & Half	Keymar	1.08	1.00	.....	.....	2.55	.....	16.02	15.00	21.36	19.00
32745	Twenty Six Dollar Phosphate	Sparks	1.40	1.75	.....	.....	3.35	.....	14.08	13.50	21.02	20.50
32723	Wheat & Grass Producer	Williamsport	1.27	1.25	.....	.....	3.50	1.00	13.51	13.50	19.99	18.90
	Miller Fertilizer Co., Balto., Md.											
32663	Acid Phosphate	Sparks	.....	.....	.....	.....	.40	.50	14.41	14.00	10.17	9.90
32780	Acid Phosphate		.....	.....	.....	.....	.49	.....	16.18	16.00	11.43	11.20
32504	Ammoniated Dissolved Bone	Baltimore	1.76	1.75	1.04	1.00	.88	.50	7.54	8.00	21.17	21.20
32635	Club Brand (Low Grade)	Simpsonville	.58	.50	.54	.50	.78	.50	8.18	8.00	14.05	13.20
32724	Farmers Profit	Keedysville	1.06	1.00	2.84	3.00	1.48	.50	8.69	8.00	30.56	30.20
32733	Ground Bone	Aberdeen	3.21	3.00	....	.....	*14.66	*14.50	.....	.....	20.17	19.25
32665	Harvest Queen	Sparks	1.01	1.25	1.20	.75	.78	.50	9.26	9.00	20.81	18.70
32650	Hustler Phosphate (Low Grade)	Monrovia	.96	1.00	.52	.50	1.20	.50	7.92	8.00	15.36	15.20

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							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Miller Fertilizer Co., Balto., Md.											
32690	M. B. S	Alesia	1.01	1.00	1.72	2.00	.83	.50	8.20	8.00	$22.89	$24.20
32725	No. 1 Ammoniated Dis. Bone	Big Spring	2.02	2.00	2.10	2.00	.83	.50	8.10	8.00	29.11	28.20
32636	No. 1 Special	Simpsonville	1.93	2.00	.....	.....	.95	.50	10.02	10.00	18.12	18.20
32781	No. 2 Special	Ellicott City	1.08	1.25		.....	.62	.50	8.82	9.00	13.39	14.20
32719	Standard Phosphate	Baltimore	2.88	3.00	2.02	2.02	.55	.50	8.02	8.00	31.88	32.20
32539	W. G. Phosphate (Low Grade)	Baltimore	.58	.50	.56	.50	.75	.50	7.55	7.00	13.53	12.20
	Nitrate Agencies Co., New York, N. Y.											
32566	Genuine Peruvian Guano	Baltimore	12.87	13.00	2.70	2.00	1.88	.....	11.08	10.00	79.51	74.00
32520	High Grade Acid Phosphate	Baltimore	.....	.....	.....	.....	.83	...	14.97	14.00	10.65	9.80
32548	High Grade Acid Phosphate	Baltimore	.....	.....	.....	.....	.45	.....	16.14	16.00	11.39	11.20
	G. Ober & Sons Co., Balto., Md.											
32680	Avondale Amm'd Dis Bone	Baltimore	1.84	2.00	2.24	2.00	1.13	.....	8.24	8.00	29.49	28.00
32699	Dissolved Animal Bone	Baltimore	2.97	3.00	.....	.....	2.85	.....	12.10	10.00	25.12	22.00
32606	Dissolved Bone Phosphate	Baltimore	.....	.....	.....	....	1.65	.....	14.59	14.00	10.54	9.80
32778	Dissolved Bone Phos. & Potash.		.....	.....	2.02	2.00	1.12	.....	10.72	10.00	19.84	19.00
32582	Farmers Mixture	Baltimore	1.23	1.00	2.26	2.00	1.13	.....	10.46	9.00	29.39	25.00
32512	Farmers Stand. Amm'd Phos	Baltimore	2.44	2.00	2.38	2.00	1.50	.....	8.65	9.00	33.29	29.00
32779	Fish & Potash Fertilizer	Baltimore	1.93	2.00	2.26	2.00	1.42	.....	9.11	9.00	30.96	29.00
32528	Harvest King Compound	Baltimore	2.12	2.00	3.04	3.00	1.18	.....	9.20	9.00	36.39	35.00
32527	High Grade Acid Phosphate	Balt more	.....	.....	.....	.....	1.20	.....	16.07	16.00	11.49	11.20
32666	High Grade Acid Phosphate	Cockeysville	.....	.....	.....	...	1.05	.....	16.40	16.00	11.69	11.20
32702	Independent Amm'd Super-Phos.	Baltimore	1.02	1.00	1.56	1.00	.93	.....	7.28	8.00	21.09	18.00

32567	Pure Bone Meal	Baltimore	3.60	3.00	.....	.....	*24.31	*22.00	.....	.....	$26.56	$28.00
32500	Pure Raw Bone Meal	Baltimore	4.56	4.50	.....	.....	*22.03	*21.00	...	.....	29.26	28.50
32529	Red Arrow Guano	Baltimore	1.28	1.00	3.22	3.00	1.00	.....	8.76	9.00	33.60	31.00
32620	Sol. Amm'd Super-Phos. of Lime	Baltimore	2.12	2.00	2.36	2.00	1.40	.....	8.03	8.00	31.23	28.00
32580	Superior Phosphate & Potash	Baltimore	.....	.....	1.96	2.00	2.08	.....	12.20	12.00	20.72	20.40
	Patapsco Guano Co., Balto., Md.											
32720	Alkaline Phosphate Special	Baltimore	.....	.....	1.94	2.00	.98	.....	12.12	12.00	20.32	20.40
32624	Baltimore Soluble Phosphate	Baltimore	.....	.....	2.04	2.00	1.23	.....	10.57	11.00	19.89	19.70
32640	Blood, Bone & Potash (L. Gr.)	Baltimore	.52	.50	2.26	2.00	.95	.....	8.25	8.00	24.27	22.00
32749	Columbia Guano Special	Baltimore	2.73	3.00	2.88	3.00	1.72	.....	8.43	8.00	37.32	38.00
32530	Coon Brand Guano	Baltimore	1.11	1.00	3.26	3.00	2.25	.....	7.94	9.00	32.84	31.00
32549	Dissolved Animal Bone	Baltimore	2.30	2.50	....	....	2.15	.....	11.72	12.00	21.78	22.00
32610	Fish Guano.	Baltimore	2.15	2.00	1.96	2.00	1.95	.....	5.91	6.00	27.05	26.00
32611	Grain & Grass Producer Special	Baltimore	.94	1.00	3.05	3.00	1.00	.....	7.93	8.00	30.39	30.00
32667	Grange Mixture	Cockeysville	1.86	2.00	2.02	2.00	1.65	.....	7.87	8.00	28.09	28.00
32599	High Grade Acid Phosphate	Baltimore	.....	....	....	....	.70	.....	16.20	16.00	11.48	11.20
32550	Money Maker	Baltimore	1.02	1.00	1.94	2.00	1.63	.....	7.82	8.00	24.19	24.00
32536	Pure Dissolved S. C. Phosphate.	Baltimore	.....	.....	....	.....	1.13	.....	14.76	14.00	10.56	9.80
32600	Pure Raw Bone	Balt more	4.54	4.50	....	.....	*20.21	*21.51	...	....	28.27	28.76
32583	Sea Gull Guano	Baltimore	1.01	1.00	1.04	1.00	1.70	.....	6.75	8.00	17.71	18.00
32597	Soluble Phosphate & Potash	Baltimore	.....	.....	1.94	2.00	1.10	.....	9.47	10.00	18.49	19.00
	Piedmont-Mt. Airy Guano Co., Balto., Md.											
32726	Gowers Half & Half	Williamsport	1.01	1.00	....	....	1.38	.....	15.41	15.00	20.00	19.00
32645	Levering's Ammoniated Bone	Mt. Airy	1.08	1.00	2.18	2.00	1.20	.....	10.39	10.00	28.27	26.00
32601	Levering's Excelsior	Baltimore	.87	1.00	1.03	1.00	1.15	.....	8.09	8.00	18.21	18.00
32607	Levering's Harvest Queen	Baltimore	1.19	1.00	2.08	2.00	1.10	.....	8.67	8.00	26.35	24.00
32627	Peerless Phosphate	Derwood	.82	1.00	1.05	1.50	1.15	2.00	9.50	8.00	19.54	21.80
22639	Peerless Phosphate	Sandy Spring	.96	1.00	.92	1.50	1.23	2.00	9.31	8.00	19.16	21.80
32521	Piedmont Acid Phosphate 14%	Baltimore	.....	.....	.....	.....	1.38	.....	14.13	14.00	10.17	9.80
32602	Piedmont Acid Phosphate 16%	Baltimore	....	.....	.....	.....	1.60	.....	16.37	16.00	11.78	11.20
32703	Piedmont Ammoniated Phos	Baltimore	.84	1.00	.....	.....	.55	.....	14.51	14.00	18.09	18.00
32505	Piedmont Economy (Low Grade)	Baltimore	.43	.25	2.30	2.00	.70	.....	10.71	10.00	26.51	23.00
32707	Piedmont Farmers Potash Mix.	Baltimore	...	.....	1.30	2.00	.43	.....	10.41	10.00	15.18	19.00
32708	Piedmont Fish Guano	Baltimore	2.01	2.00	1.62	2.00	1.18	.....	9.13	8.00	27.36	28.00
32675	Piedmont Plow Brand	Wingate	2.01	2.00	1.82	2.00	1.20	.....	8.83	8.00	28.27	28.00
32668	Piedmont Raw Bone Mixture	Owings Mills	1.09	1.25	2.44	2.00	1.95	.....	8.57	8.00	28.25	25.00
32646	Piedmont Special.	Mt. Airy	1.74	2.00	1.52	2.00	1.10	.....	9.95	8.50	26.47	28.50
32714	Piedmont Special Phosphate	Baltimore	.....	.....	.72	1.00	.95	.....	13.08	12.00	13.67	14.40

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Piedmont-Mt. Airy Guano Co., Balto., Md.											
32608	Piedmont Special Phosphate....	Baltimore.....	.....	.....	.76	1.00	1.05	.....	12.90	12.00	$13.80	$14.40
32647	Piedmont Stand. Dis. Bone Phos.	Mt. Airy.....	1.01	1.00	1.68	2.00	1.38	2.00	10.97	10.00	25.64	26.80
32576	Piedmont Wheat Special (L. Gr.)	Baltimore.....	.51	.50	.78	1.00	.70	.....	8.50	8.00	15.50	16.00
	Ramsburg Fertilizer Co., Frederick, Md.											
32648	Acid Phosphate 16%..	Mt. Airy.....	.....	.....	.....	.....	1.68	.....	16.09	16.00	11.60	11.20
32555	Alkaline Phosphate.....	Thurmont.....	.....	.....	1.88	2.00	.85	.....	10.03	10.00	18.47	19.00
32628	Ammoniated Bone Phosphate...	Boyd.	1.02	1.00	1.58	2.00	3.30	.....	9.50	10.00	24.38	26.00
32651	Excelsior Half & Half.....	Myersville	1.18	1.00	.90	1.00	2.00	.....	10.77	10.00	21.69	20.00
32556	Excelsior Plant Food.....	Monrovia	2.01	2.00	1.90	2.00	3.13	.....	10.45	9.00	31.14	29.00
32458	Excelsior Plant Food.....	Br'keville (D.F.O.)	2.15	2.00	2.04	2.00	3.05	.....	11.30	9.00	33.36	29.00
32557	Old Virginia Compound.....	Monrovia	1.04	1.00	3.24	3.00	2.20	.....	9.79	9.00	34.27	31.00
32558	Queen (Low Grade)	Monrovia	.58	.50	.80	1.00	2.23	.....	9.96	8.00	17.97	16.00
32559	Super-Phosphate.....	Monrovia	.....	.....	.....	.....	.68	.....	16.36	16.00	11.59	11.20
32560	William's Wheat & Grass Fert..	Monrovia	1.06	1.00	1.56	2.00	2.45	.....	10.06	8.00	24.64	24.00
	Rasin-Monumental Co., Balto., Md.											
32654	**M. & C. Md. Sun H. G. Guano..	Woodsboro.....	.84	1.00	.92	1.00	2.05	1.00	8.12	8.00	17.82	18.40
32546	Rasin's Acid Phosphate	Baltimore.....	.....	.....	.....	.....	1.23	.....	14.79	14.00	10.60	9.80
32523	Rasin's Acid Phosphate.....	Baltimore.....	.....	.....	.....	.....	1.30	.....	16.44	16.00	11.77	11.20
32577	Rasin's Bone & Potash Fert	Baltimore.....	.....	.....	1.76	2.00	1.63	.....	10.17	10.00	18.01	19.00
32551	Rasin's Capital Crop Compound.	Baltimore.....	1.08	1.00	3.09	3.00	1.55	1.00	8.92	9.00	32.40	31.40
32540	Rasin's Champ. Pot. & Veg. Man.	Baltimore.....	3.75	4.00	3.03	3.00	1.18	1.00	9.02	8.00	42.67	42.40
32731	Rsn's C'n Bkwht. & Tom S. (L. G.)	Hancock	.....	.....	2.84	2.00	1.50	.....	6.71	7.00	22.04	16.90

32652	Rasin's Crop Grower	Monrovia	.87	1.00	1.02	1.00	.80	1.00	7.33	8.00	$17.25	$18.40
32704	Rasin's Crop Preparation	Baltimore	1.67	2.00	.....	.....	2.45	.....	9.43	10.00	17.09	18.00
32621	Rasin's Dissolved Bone	Baltimore	2.08	2.00	.....	.....	4.95	.....	9.63	10.00	19.93	18.00
32653	Emergency Royal Fish, B. & P.	Monrovia	1.71	2.00	1.05	1.00	2.80	1.00	8.65	8.50	22.91	22.90
32660	Rasin's Empire Guano	Gaithersburg	2.08	2.00	2.64	2.00	1.98	.....	7.42	8.00	32.37	28.00
32763	Little Gi. Phos. & Pot. (L. G.)		.....	.....	1.90	2.00	1.30	.....	8.10	8.00	17.33	17.60
32547	Rsn's Phos. & Pot.—Rev. (L.G.)	Baltimore	.....	.....	1.04	1.00	1.45	.....	9.43	10.00	13.17	13.00
32561	Rasin's Quality Compound	Emmitsburg	.94	1.00	3.26	3.00	1.30	1.00	6.54	7.00	30.38	29.40
32553	Rasin's Royal Fish, Bone & Pot.	Baltimore	1.83	2.00	3.20	3.00	2.15	1.00	8.02	8.00	35.40	34.40
32541	Royal Great Alk, Grain Grower	Baltimore	.....	.....	2.05	2.00	2.20	.....	14.01	14.00	22.55	21.80
32717	Rsn's Sea Wall Ph's & P't (L.G.)	Baltimore	.....	.....	1.80	2.00	1.65	.....	9.86	9.00	18.03	18.30
32777	Rasin's Sea Wall Spec. (L. Gr.)		.....	.....	.....	.....	1.75	.....	10.36	10.00	7.60	7.00
32637	Rsn's Spec. Fish & Bone Guano.	Simpsonville	2.05	2.00	.....	.....	3.30	.....	10.49	11.00	20.01	19.00
32710	Rasin's United Grain Grower	Baltimore	1.04	1.00	1.84	2.00	1.90	1.00	8.91	8.00	24.87	24.40
32581	Rasin's Victoria Phos. & Pot.	Baltimore	.....	.....	1.78	2.00	2.00	.....	12.49	12.00	19.82	20.40
32625	Wht. Corn & Oats Mix. (L. G.)	Baltimore	.51	.50	2.16	2.00	2.05	1.00	7.75	8.00	23.57	22.40
32776	William Penn Crop Grower	Dayton	1.06	1.00	1.03	1.00	2.20	1.00	8.45	8.00	19.75	18.40
	Reindollar Co., Taneytown, Md.											
32691	Economy Fertilizer	Taneytown	1.08	1.00	2.26	2.00	2.25	.....	10.28	9.00	29.06	25.00
32692	Rock & Potash	Taneytown	.....	.....	2.12	2.00	1.38	.....	11.29	12.00	20.90	20.40
	W. E. Robinson, & Co., Bel Air, Md.											
32734	Vegetable & Grain Gro. (L.Gr.)	Fallston	2.27	2.25	.68	.50	.65	.....	7.48	7.00	20.90	19.00
	F S. Royster Guano Co, Balto., Md.											
32532	Acid Phosphate 14%	Baltimore	.....	.....	.....	.....	1.78	.....	14.91	14.00	10.80	9.80
32612	Bone & Potash Mixture	Baltimore	.....	.....	1.88	2.00	1.25	.....	10.02	10.00	18.54	19.00
32595	Cloverdale Grain & Grass Gro.	Baltimore	.....	.....	1.78	2.00	1.48	.....	10.38	10.00	18.25	19.00
32533	Cuckoo Crop Grower	Baltimore	1.01	1.00	1.08	1.00	.93	.....	8.03	8.00	18.92	18.00
32613	Dissolved Bone	Baltimore	2.22	2.50	.....	.....	2.70	.....	12.67	12.00	22.63	22.00
32735	Dooley's Cardiff Mixture	Cardiff	1.88	2.00	3.44	3.00	2.13	.....	7.19	8.00	36.20	34.00
32736	Dooley's Special	Cardiff	1.01	1.00	2.42	3.00	1.78	.....	7.16	8.00	26.43	30.00
32537	Dreadnaught Fertilizer	Baltimore	2.01	2.00	2.12	2.00	1.18	.....	7.87	8.00	29.10	28.00
32638	Fish, Flesh & Fowl	Clarksville	2.03	2.00	2.92	3.00	1.18	.....	8.06	8.00	34.17	34.00
32614	Harmony Compound	Baltimore	.....	.....	1.95	2.00	1.68	.....	12.03	12.00	20.46	20.40
32568	H. G. Acid Phosphate 16%	Baltimore	.....	.....	.....	.....	1.45	.....	16.56	16.00	11.88	11.20
32515	H. G. Acid Phosphate 16%	Baltimore	.....	.....	.....	.....	1.63	.....	16.14	16.00	11.63	11.20
32596	Pure Raw Bone Meal	Baltimore	4.32	4.50	.....	.....	*24.82	*21.50	.....	.....	29.69	28.75
32516	Seeding Down Special Fertilizer	Baltimore	1.09	1.00	2.88	3.00	1.05	.....	8.90	9.00	30.96	31.00

* Total Phosphoric Acid. ** Miller & Cramer, Woodsboro, Md.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	F S. Royster Guano Co, Balto., Md.											
32569	Wheat, Oats & Barley Fert....	Baltimore.....	1.03	1.00	1.88	2.00	1.18	.....	8.02	8.00	$23.89	$24.00
	Scott Fertilizer Co., Elkton, Md.											
32746	Soluble Phos. & Potash 12 & 2..	.....	.....	.....	1.78	2.00	1.00	.....	13.68	12.00	20.46	20.40
32674	Sure Growth Super-Phosphate..	Port Deposit.....	1.79	2.00	3.06	3.00	2.50	.....	7.94	8.00	34.46	34.00
32748	Tip Top Soluble Phosphate.....	Chesapeake City...	.....	.....	.....	.....	2.55	.....	14.35	14.00	10.56	9.80
	Standard Guano Co., Balto., Md.											
32457	Ammoniated Bone	Libertytown (M. B.)	1.88	2.00	.....	.....	1.50	.....	12.38	12.00	20.50	20.00
32762	Extra H. G. Acid Phosphate....	Silver Spring.....	..	....	.....	.....	1.32	.....	16.77	16.00	12.00	11.20
32584	Star Wheat Grower.....	Baltimore.....	1.72	2.00	.90	1.00	2.50	.....	8.39	8.00	21.67	22.00
	W. H. Streett & Co., Fallston, Md.											
32681	Animal Compound.....	Baltimore.....	2.51	2.50	.....	.....	1.75	.50	10.02	10.00	20.76	20.20
32570	Standard (Low Grade).....	Baltimore.....	1.51	1.50	.90	.50	.60	.50	9.65	10.00	21.33	19.20
	Superior Guano Co., Balto., Md.											
32585	M. B. W. Acid Phosphate 16%..	Baltimore.....	.....	.....	.....	.....	1.20	.....	16.07	16.00	11.49	11.20
32605	M. B. W. Big Crop Grower.....	Baltimore.	1.47	2.00	2.24	2.00	1.20	.....	9.59	8.00	29.39	28.00
32603	M. B. W. Crop Producer.....	Baltimore.....	1.01	1.00	.44	1.00	1.68	.....	9.49	8.00	16.84	18.00
32534	M B. W. Dissolved Bone.....	Baltimore.....	1.27	1.25	.....	.....	4.30	.....	9.85	10.00	16.65	15.00
32757	M. B. W. Sp'l Bone Mix (L Gr.)	Baltimore..... ...	.72	.50	.86	1.50	3.65	.....	6.15	9.00	15.65	20.00
32587	M. B. W. Special Mixture No. 2	Baltimore.....	1.01	1.00	.....	.....	.50	.....	11.01	10.00	15.25	14.00
32767	M. B. W. Wh't & Grass (L Gr.)	....	.....	.....	.90	1.50	.78	.....	7.64	8.00	10.91	14.60

	Swift & Co., Balto., Md.											
32700	Farmers Favorite	Baltimore	1.50	2.00	1.16	1.00	1.85	.....	9.02	9.00	$22.52	$23.00
32705	Garden City Phosphate	Baltimore	.....	.....	.....	.....	.80	.....	14.10	14.00	10.03	9.80
32462	Pure Bone Meal	Bartholows (J.A.E.)	2.39	3.00	.....	.....	*30.35	*24.00	.....	.....	24.74	24.00
32589	Pure Pul. Sheep Manure	Baltimore	2.39	2.50	2.32	1.50	* 1.48	* 1.00	.....	.....	24.22	19.50
32649	Pure Spec. Phos. & Potash	Mt. Airy	.....	.....	2.02	2.00	1.13	.....	10.42	10.00	19.64	19.00
32758	Raw Bone Meal	Baltimore	4.32	4.50	.....	.....	*24.98	*23.00	.....	.....	29.77	29.50
32470	Raw Bone Meal	Hollywood (A.J.H.)	3.91	4.50	.....	.....	*22.35	*23.00	.....	.....	26.82	29.50
32676	Red Steer	Pocomoke City	1.79	2.00	2.03	2.00	1.63	.....	8.13	8.00	28.12	28.00
32598	Reliable Grain Fertilizer	Baltimore	1.14	1.00	1.16	1.00	1.18	.....	7.33	8.00	19.32	18.00
32535	Spec. H. G. Acid Phosphate	Baltimore	.....	.....	.....	.....	1.00	.....	16.36	16.00	11.65	11.20
32460	Spec. H. G. Acid Phosphate	Mt. Airy (H. R.)	.....	.....	.....	.....	.48	.....	16.08	16.00	11.36	11.20
32469	Spec. H. G. Acid Phosphate	Mt. Airy (J.N.C.)	.....	.....	.....	.....	1.05	.....	15.59	16.00	11.12	11.20
32473	Spec. H. G. Acid Phosphate	Mt. Airy (J. A. E.)	.....	.....	.....	.....	1.15	.....	13.53	16.00	9.70	11.20
32669	Vegetable & Fruit Grower	Owings Mills	1.55	2.00	2.84	3.00	1.25	.....	8.01	8.00	31.75	34.00
	H. S. Taveau & Co., Balto, Md.											
32718	Fine Ground Bone	Baltimore	3.05	3.00	.....	.....	*17.85	*13.73	.....	...	21.13	18.87
32682	Florida Phosphate	Baltimore	.....	.....	.....		.73	.....	13.81	14.00	9.82	9.80
32615	Special Wheat Mixture	Baltimore	.....	.....	1.94	2.00	.95	.....	10.11	10.00	18.91	19.00
	Thomas & Co., Frederick, Md.											
32629	Crop Grower	Washington Grove	1.19	1.00	.82	1.00	2.55	.....	7.67	8.00	18.37	18.00
	I. P. Thomas & Sons Co., Phila., Pa.											
32655	S. C. Phosphate	Hancock	.....	.....	.....	.....	.55	.....	14.03	14.00	9.93	9.80
	Wm. B. Tilghman Co., Salisbury, Md.											
32740	Bone Tankage Mixture 2 10	Eden	1.71	2.00	.....	.....	2.12	.....	11.60	10.00	19.29	18.00
32618	Fish Mixture	Parsonsburg	2.25	2.00	.....	.....	1.60	.....	10.13	10.00	19.77	18.00
32755	Fish, Bone Phosphate	Salisbury	1.23	1.00	.....	.....	1.65	.....	11.98	11.00	17.56	15.00
32741	4-9-B	Salisbury	3.67	4.00	.....	.....	1.60	.....	9.84	9.00	25.16	25.00
32756	Special for Clover (Low Gr.)	Salisbury	.49	.33	.....	.....	1.10	.....	13.33	13.00	15.73	14.32
	Tuscarora Fertilizer Co., Balto., Md.											
32716	Acid Phosphate	Baltimore	.....	.....	.....	.....	.75	.....	16.35	16.00	11.60	11.20
32706	Crop Grower	Baltimore	1.03	1.00	1.78	2.00	1.00	.....	7.67	8.00	22.87	24.00
32729	Phosphate & Potash	Baltimore	.....	.....	1.86	2.00	.80	.....	11.03	10.00	19.04	19.00
	J. Tyson & Son, Frederick, Md.											
32630	Half & Half Super-Phosphate	Dickerson	1.02	1.00	1.01	1.00	.95	.....	8.02	8.00	18.54	18.00

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	J. Tyson & Son, Frederick, Md.											
32656	Reliable Crop Grower	Woodsboro	1.13	1.00	1.64	2.00	.95	.....	9.01	9.00	$23.75	$25.00
32727	South Carolina Rock	Frederick	.....	.....	.....	.....	.35	.....	16.31	16.00	11.49	11.20
32657	Special Mixture (Low Grade)	Woodsboro	.55	.50	1.02	1.00	.68	.....	8.52	8.00	17.11	16.00
32728	XX High Grade Fertilizer	Libertytown	2.02	2.00	3.18	3.00	.68	.....	8.13	8.00	35.56	34.00
	E. S. Valliant & Son, Church Hill, Md.											
32506	Acid Phosphate	Baltimore	.....	.....	.....	.....	.95	.50	14.67	14.00	10.46	9.90
32525	Amm'd Potash Mix. (L. Gr.)	Baltimore	.41	.25	.42	.25	.95	.....	10.45	10.00	14.99	12.50
32677	Dorchester Brand (Low Grade)	Vienna	1.16	1.00	.51	.50	.65	.....	12.77	12.00	20.73	19.00
32578	Eastern Shore Guano	Baltimore	2.32	2.00	1.04	1.00	.88	.....	10.10	10.00	25.97	24.00
32501	General Crop Mixture	Baltimore	1.02	1.00	1.04	1.00	.93	.....	8.24	8.00	18.93	18.00
32554	Grain Grower (Low Grade)	Baltimore	.43	.50	.32	.25	.58	.....	10.58	10.00	14.45	13.50
32526	1-9-1	Baltimore	1.16	1.00	1.04	1.00	.93	.....	9.32	9.00	20.57	19.00
32502	Oriole Brand (Low Grade)	Baltimore	.63	.50	.52	.50	.63	.....	9.39	10.00	15.28	15.00
32503	Standard Fertilizer	Baltimore	1.06	1.00	1.02	1.00	.90	.....	9.91	10.00	20.63	20.00
32474	Standard Fertilizer	Worton (S. J. L.)	1.21	1.00	.92	1.00	.68	.....	10.03	10.00	20.66	20.00
32683	Ten, & Two	Baltimore	.....	.....	1.68	2.00	.85	.....	10.10	10.00	17.32	19.00
32684	Two, Eight & One	Baltimore	2.12	2.00	.90	1.00	.83	.....	6.58	8.00	20.79	22.00
32685	Wheat & Grass (Low Grade)	Baltimore	1.01	1.00	.58	.50	.78	.....	9.71	9.00	17.54	16.00
	W. H. Valliant & Bro., Bellevue, Md.											
32738	Crab Phosphate	Bellevue	2.68	3.00	.....	.....	*2.18	*2.00	.....	.....	11.81	13.00

	Virginia-Carolinia Chemical Co., Richmond, Va.											
32562	Acid Phosphate 14%	Emmitsburg	.....	.....	.....	.....	1.30	.....	14.16	14.00	$10.17	$ 9.80
32641	Acid Phosphate 16%	Baltimore	.....	.....	.....	.....	1.90	.....	16.93	16.00	12.23	11.20
32563	Dissolved Bone & Potash	Emmitsburg	.....	.....	2.04	2.00	1.83	.....	10.84	10.00	20.20	19.00
32711	Giant Alkaline Grain Grower	Baltimore	.....	.....	.....	.....	2.65	1.00	14.38	14.00	10.60	10.00
32658	One, Nine & Three	Emmitsburg	.96	1.00	2.80	3.00	1.65	1.00	9.47	9.00	30.77	31.40
32659	Peerless Bone & Potash (L. Gr.)	Hancock	.....	.....	2.03	2.00	1.48	.....	7.84	8.00	17.97	17.60
32564	Soluble Alkaline Compound	Emmitsburg	.....	.....	2.14	2.00	2.50	.....	12.20	12.00	21.88	20.40
32712	Special Compound	Baltimore	1.03	1.00	.92	1.00	2.25	1.00	8.70	8.00	19.24	18.40
32730	Standard Grain Grower	Baltimore	1.01	1.00	1.76	2.00	2.00	1.00	9.28	8.00	24.68	24.40
32713	Wheat & Clover	Baltimore	1.08	1.00	1.58	2.00	2.15	1.00	9.09	9.00	23.75	25.40
	S. L. Webster & Son, Cambridge, Md.											
32750	Acid Phosphate	Cambridge	.....	.....	.....	.....	.95	.....	16.03	16.00	11.41	11.20
32751	Crop Joy	Cambridge	1.21	1.50	.82	1.00	1.67	.....	9.41	9.00	19.84	21.00
32752	Crop Marvel	Cambridge	1.35	1.25	.....	.....	3.80	.....	9.87	10.00	16.79	15.00
32753	Farmers Wonder	Cambridge	.....	.....	1.58	2.00	1.62	.....	11.61	10.00	17.93	19.00
32754	Wheat Grower	Cambridge	2.02	2.00	.....	.....	3.17	.....	10.83	11.00	20.18	19.00
	Westminster Fertilizer Co., Westminster, Md.											
32693	Governor	Lineboro	1.25	1.50	1.94	2.00	1.05	.....	9.26	9.00	26.32	27.00
32769	Leader	Westminster	1.08	1.00	1.16	1.50	.47	.....	9.33	8.00	20.80	21.00
32695	Super-A	Tyrone	1.02	1.00	1.18	1.00	1.00	.....	8.18	8.00	19.74	18.00
	H. W. Whistler, Bel Air, Md.											
32715	Crop Grower	Baltimore	1.60	1.50	1.40	2.00	1.15	.....	9.24	8.00	24.50	26.00
32737	Dissolved Bone	Bel Air	1.89	2.00	.....	.....	1.35	.....	12.68	12.00	20.78	20.00
	Robt. A. Woolridge Co., Balto., Md.											
32572	Ammoniated Phosphate	Baltimore	1.05	1.00	1.06	1.00	2.00	.....	7.37	8.00	18.73	18.00
32604	Champion Stag Phosphate	Baltimore	1.06	1.00	1.92	2.00	1.50	.....	8.30	9.00	24.66	25.00
32545	Chieftain Phosphate	Baltimore	1.81	2.00	2.16	2.00	1.70	.....	7.56	8.00	28.44	28.00
327'1	Farm's Fav. Cereal Comp (L. G.)	Friendsville	.56	.50	1.88	2.00	1.30	.....	8.29	8.00	22.33	22.00
32772	Florida Acid Phosphate	.....	.....	.....	.....	.....	.83	.....	14.56	14.00	10.36	9.80
32542	German Potash Mixture	Baltimore	.....	.....	1.92	2.00	.90	.....	10.11	10.00	18.78	19.00
32617	High Grade Acid Phosphate	Baltimore	.....	.....	.....	.....	.40	.....	16.47	16.00	11.61	11.20
32517	H. G. Dissolved Animal Bone	Baltimore	2.27	2.50	.....	.....	2.55	.....	12.08	12.00	22.18	22.00
32701	Liberty Bell Potash Mix. Spec.	Baltimore	.....	.....	2.02	2.00	1.23	.....	11.73	12.00	20.58	20.40
32538	No. 1 Phos. & Pot. Spec. (L. Gr.)	Baltimore	.....	.....	1.28	1.00	.83	.....	10.81	10.00	15.42	13.00
32686	Old Sledge Phosphate Spec.	Baltimore	.....	.....	1.78	2.00	.88	.....	15.60	14.00	21.78	21.80
32670	Spec. Potato & Tob. Fert.-Rev.	White Hall	1.71	2.00	2.82	3.00	1.70	.....	9.95	10.00	34.39	36.00

* Total Phosphoric Acid.

No.	Name and Address of Manufacturer and Name of Fertilizer	Place of Sampling (and Senders initials when not Sampled by the College Agent.)	NITROGEN Calculated as AMMONIA.		POTASH. K_2O.		PHOSPHORIC ACID.				Comparative Value Per Ton Found.	Comparative Value Per Ton Guaranteed.
							Insoluble.		Available.			
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
	Robt. A. Wooldridge Co., Balto., Md.											
32543	Triumph Brand Phos. Spec.	Baltimore.....	1.52	1.50	2.82	3.00	2.45	.....	7.19	8.00	$31.17	$32.00
	Wooldridge Fertilizer Co., Balto., Md,											
32631	Clover Leaf Crop Gro. (L. Gr.).	Boyd.....	.44	.50	.51	.50	.45	1.50	7.92	8.00	12.92	13.60
32632	Special No. 2.....	Boyd.....	1.26	1.25	.....	.....	1.70	.....	8.50	9.00	14.22	14.00
32633	Virginia Belle.....	Boyd.....	.....	.....	.88	1.00	.93	.50	11.60	12.00	13.59	14.50
	Worcester Fertilizer Co., Snow Hill, Md,											
32678	Acid Phosphate 14%.....	Pocomoke City.....	.....	.....	.....	.....	.50	.....	14.13	14.00	9.99	9.80
32742	Crop Grower	Berlin	1.18	1.00	.....	.....	.62	.....	12.67	12.00	17.64	16.00
32743	Fish & Bone Mixture.....	Snow Hill....	2.06	2.00	.....	.....	1.07	.....	13.08	10.00	21.75	18.00
32744	H. G. Acid Phosphate 16%.....	Snow Hill.....	.....	.....	.....	.....	.40	.....	16.37	16.00	11.54	11.20
	York Chemical Works, York, Pa.											
32696	Dempwolf's Harvest Queen.....	Manchester.....	1.08	1.00	1.88	2.00	.88	.....	7.38	8.00	23.33	24.00
32697	Dempwolf's Plow Brand.....	Manchester.....	1.86	2.00	2.14	2.00	.60	.....	8.02	8.00	28.54	28.00
32698	Dempwolf's 12 & 2.....	Manchester.....	2.03	2.00	.....	.....	.93	.....	12.41	12.00	20.90	20.00

terial, is dependent upon the number of animals slaughtered. Only a few large packing concerns conserve these products, which are now used to a considerable extent as cattle feed as well as for fertilizer purposes. Investigations of the Bureau of Soils have shown that there is a large amount of waste from the fisheries and fish canneries, especially on the Pacific coast and in Alaska. This material could and should be made into fish scrap, which would have a value of about $1,200,000 for fertilizer purposes.

Owing to the demand for nitric acid for munition purposes, the price of nitrate of soda advanced approximately $1.10 per hundred pounds during the year prior to November, 1915. Only a very small percentage of the nitrates imported from the Chilean beds goes into fertilizers, being mainly incorporated in special brands for greenhouse and trucking purposes. This item alone, therefore, will not cause much embarrassment to American farmers.

One of the most important sources of nitrogen for commercial fertilizer purposes is ammonium sulphate. This is produced as a by-product in the destructive distillation of coal for the preparation of coke. The nitrogen contained in the coal is evolved as ammonia and is caught and neutralized with sulphuric acid. Formerly all coke was made in the beehive oven, which did not provide for the confinement of the combustible gases produced. These were burned as evolved and the ammonia carried by them was likewise lost. The domestic production of ammonium sulphate from the coke oven is only one-fifth of what it could be were the beehive oven entirely displaced by more modern types. During the past few years there has been a slow transition from the use of the beehive oven. It is not imperative, therefore, to resort to extreme measures to increase the production of ammonia.

Another source of nitrogen is found in garbage. The investigations of the Bureau of Soils indicate that if the garbage of all cities having a population of 30,000 and over were converted into garbage tankage, the product would be worth for fertilizer purposes at least $3,500.000. In view of the present situation, immediate steps should be taken by all municipalities to conserve the garbage and to make it available for use in the fertilizer trade.

The Bureau of Soils is studying also the problem of the fixation of atmosphereic nitrogen with a view to develop a method for the production of ammonium phosphate and other forms of concentrated fertilizers. No ammonium phosphate is being made in this country at the present time. If cheap water power, phosphate rock, coal, and limestone can be found in accessible localities, the possibility of making this material on a commercial scale is considered entirely feasible The greatest difficulty here is to discover cheap water power at points where phosphate rock, coal, and limestone are readily available. The department is making every effort to locate available sources of developed water power which can be used in the manufacture of ammonium phosphate and other fertilizers.

It must not be understood that the suggestions which have been made, or the efforts which are now being put forth, will result in immediate relief for farmers. There are a number of technical problems which have to be solved if these fertilizers are to be produced on a commercial scale, and even if the funds for the necessary plants were provided, either from private or public sources, considerable time necessarily would be required for the erection of the plants and for their full operation.

SAVE ALL AVAILABLE FERTILIZER ELEMENTS.

In the unusual conditions existing in the fertilizer trade, it is important that all fertilizing materials on the farm, especially those containing potash, should be conserved. The fertilizer ingredients already existing in the soil should be utilized and developed to the fullest extent. A great

deal can be accomplished in this direction by deep plowing, constant cultivation, and thorough tillage. There should be a proper system of rotation. Especially where one crop has been grown for several years a different one should be planted this year. Green manures and cover crops should be used as much as possible in their proper rotation.

Of the organic substances, manure, both solid and liquid, is the most important and should be utilized wherever possible. All materials of an organic nature, such as leaves and bedding of various sorts, should be composted and the compost applied to the soil. Special attention should be given also to the conservation of wood ashes. Depending on the character of the wood, they contain potash in quantities varying ordinarily from 3 to 10 per cent. All tree trimmings, brush cuttings, etc., should be burned and the ashes derived therefrom utilized.

The application of lime to many soils is of undoubted benefit. Though the availability of the fertilizing elements in the soil may not be greatly increased by its use, the resulting improvement in physical and bacterial conditions may increase considerably the productiveness of the soil.

FELDSPAR.

The abnormal potash situation has prompted articles in the popular press calling attention to the fact that feldspar, or "spar" contains potash and many samples have been sent to the laboratory requesting that the amount of potash be determined. Such requests cannot be complied with. While the potash in feldspar may run from 7 to 12% or even higher, it is in a highly insoluble state and of no practical value as a fertilizer, the potash being in practically the same form in which it is already so abundant in nearly all soils, as shown above.

Some of the fertilizer manufacturers have been experimenting with feldspar in various ways, one of which is to grind the material very fine and mix some of it with the ground phosphate rock and treat the mixture with the sulfuric acid as in the process for making acid phosphate. Feldspar, however, is but slightly soluble in the acid, differing in this respect from phosphates, and only a small amount of the potash in it is dissolved in this way. The material, however, serves the purpose of a filler.

It may be possible that a practical method or methods may be devised for making the potash in feldspar available, though the prospect for such a method is not bright when it is contemplated that imported potash, in which the potash is soluble in water, will be available at or near former prices after the close of the European War.

Farmers should not be misled by quotations on substances in which the potash is insoluble, hence unavailable. The soil is abundantly supplied with such potash in nearly all cases.

The "Quarterly' bulletins which are the reports of the State Chemist are furnished free to the farmers of Maryland. If not already receiving them, all that is necessary to get one's name on the mailing list is to address a postal card with the request to H. B. McDonnell, State Chemist, College Park, Md.